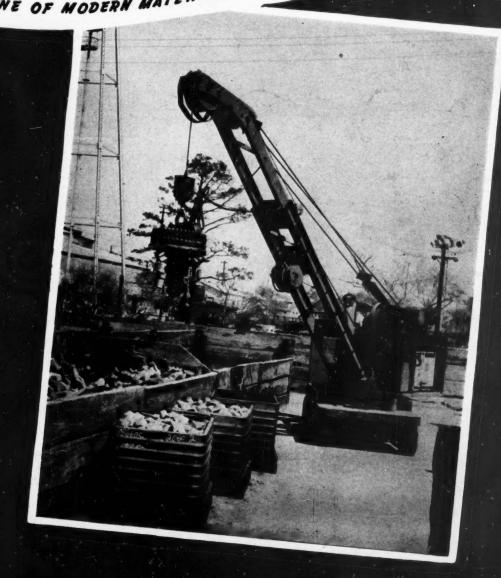
THE MAGAZINE OF MODERN MATERIAL HANDLING AND PACKAGING METHODS



IN THIS ISSUE:

Load Unit Method Study... New Grab... A Heavy Forge Job Communications Cut Costs... Engineering Elevator Capacity



There's only one Trav-Lift! P&H builds it! But it's available in capacities up to 15 tons — with various lifting speeds and spans - with floor or cage control. In short, your Trav-Lift is tailored to fit your specific needs.

Designed and built with the same safety factors as a heavy-duty crane, standardized designs and lower costs make the Trav-Lift your best bet wherever service needs do not warrant investment in a heavy-duty crane.

Dependable? It's a product of P&H — America's leading builder of overhead materials handling equipment!

Trav-Lift Capacities Run up to 15 Tons



See how the P&H Trav-Lift Crane can bring you new and broader economies in materials handling. Write for Bulletin H-13.



TRAV-LIFT CRANES

4643 West National Avenue Milwaukee 14, Wisconsin



These added values protect your investment

VARIABLE SPEED FULL MAGNETIC CONTROL provides 5 distinct steps for all motions: controlled from pendant push-button or from operator's cab. SAFE — Only 110 volts at the push-button when floor-controlled. Start-stop main line contactor, disconnect switch, thermal overload protection, magnetic limit switch and powerful brakes assure maximum safety.

ALL-WELDED BRIDGE AND TROLLEY incorporates the most important factors in reliable service rigidity, safety, accessibility.

LIFE-TIME CONSTRUCTION - Motors designed specifically for crane service - high starting torque, frequent reversal, etc. Shaved gears, grease sealed antifriction bearings throughout.

COMPETENT ENGINEERING SERVICE - P&H materials handling engineers will gladly give you their years of experience in working out your particular problems. Write us.





How Stewart-Warner Corp. Uses the

SKYLIFT 4 STEP WAY to Cut Unloading Costs \$6,222.50



DRIVE IN AND OUT OF BOXCAR WITH LOAD. Skylift moves through a standard 7 foot door. As shown here, operator drives inside car, forks pick up a pallet load of radio cabinets, and he moves out of car on his way to storage. Low collapsed height of 83 inches permits this. And it handles as easy as an automobile, with easy finger-tip lever control for lift and tilt, forward and reverse.

NARROW AISLES NO HANDI-CAP. As shown, Skylift is light weight, compact—moves through narrow aisles, turns sharp corners, moves to storage areas in minimum time, with minimum effort. Compare this with tedious, back-straining effort of moving cabinets manually. Yes, Skylift lightens labor's load, management's, tool



Saves 4,750 Man-Hours!

With an investment in only 2 Automatic Skylift Electric Trucks and 3 Transporters, STEWART-WARNER CORPORATION, Chicago, earned a return of over 75% in man-hours saved and handling costs reduced in their home radio division.

In the unloading of hundreds and hundreds of carloads of difficult-to-handle radio cabinets, time studies and cost figures tell a truly amazing story of human energy saved, handling costs slashed almost unbelievably.

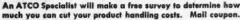
Without SKYLIFT, it took 25 man-hours to unload one carload of radio cabinets—a labor cost of \$32.75 per car. With Skylift, it took 6 man-hours to unload the same car-a saving of 19 hours, or \$24.89 labor cost saved

Multiply this by the hundreds of carloads on the Stewart-Warner unloading schedule, and you see why the SKYLIFT 4 STEP WAY shown here can cut handling costs of unloading radio cabinets as much as \$6,222.50 in just one phase of their production operation. Similar savings may be yours. Mail coupon.



CEILING HIGH STACKING.

Once in the storage area, a flip of the tilt and lift lever, and the load of radio cabinets is stacked easily and neatly to ceiling heights—as high as 130 inches, providing extra storage space free. When required for the production line, cabinets are brought to floor level just as easily, ready for movement to production.





TRANSPORTERS MOVE PRODUCT FROM STORAGE TO **PRODUCTION.** Automatic's mighty midget of electrical power receives the pallets of radio cabinets and moves them with easy push-button control to the production line. Dual-Lift Foot Pump, or ATCO Electric Lift gets load off floor into moving position, and Transporters again take the finished radios from end of production line to shipping — a 4-way product handling operation utilizing minir energy, maximum savings!



AUTOMATIC TRANSPORTATION COMPANY

141 West 87th Street, Dept. F-9, Chicago 20, Ill. Please mail me, without cost, complete facts on how I can cut my material handling costs with Automatic Skylift and Transporter Electric Trucks.

By	 	 	Position.	
City	 	 Zone	Stat	e

New GOULD Z" Plate





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CONTENTS

COVER PHOTO—Yard handling is an important part of plant handling. The operator of this crane truck sends tons of rough forgings to the shop in these corrugated steel skid bins. The 24" lifting magnet picks up one ton at a time. See complete details in article on page 24.

FEATURES

Gold Brick OR THE REAL THING—an editorial	21
Study Of A LOAD UNIT METHOD—Part II	22
HEAVY FORGE JOB—effortlessly done	25
GRAB With Powered TURNTABLE—an innovation	28
THREE BENEFITS From A Modernized HANDLING PROGRAM	30
COMMUNICATIONS CUT HANDLING COSTS— third winner in Cost Analysis Contest	40
FLOW ENGINEERING DATA PAGE—a monthly feature	57
PACKAGING MECHANICS SECTION	
High-Volume GLASS PACKING WITH CARE	60
PRE-PACKAGING Tomatoes In TRAYS—30,000 pounds daily	65
DEPARTMENTS	
Institute Chapter and Association Activities	38
News From The Sales Field—about equipment distributors	40
On The Pallet—news, views, trends	50
Men In The News—appointments and promotions	51
New Products—equipment of interest	69
Useful Literature—free publications from manufacturers	75
Opportunities—lines and personnel wanted, etc	78

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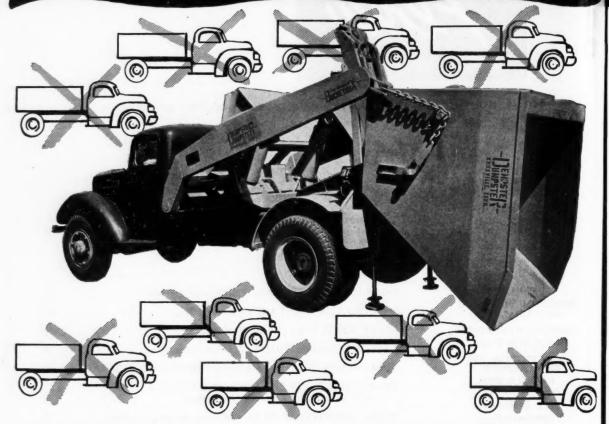
Canada—\$4 per year, \$6.00 for 2 years. Foreign—\$5.00 per year. Single copy price—30 cents

"Acceptance under the act of June 5, 1934, at Milwaukee, Wisconsin, authorized August 15, 1947."





One Dempster-Dumpster with 99



Being a large operation, this copper smelter required ten trucks and their crews, a series of push cars, a train car system and loading crews to handle over twenty different kinds of materials on relatively short hauls between plant buildings and outside of the grounds. The materials handled included, scrap of all descriptions, trash, rubbish, new and used brick, excavation spoil, waste oils, filter cake, dust, sand, gravel, cement, fire clay and many others.

A large majority of the handling, re-handling, storage, truck and car equipment and crews standing idle, was eliminated by the Dempster-Dumpster System. Simply

stated, this system provides quick pick-up of preloaded containers for hauling, dumping or moving material to another location. The three pictures below show how it operates. The left illustration shows the Dempster-Dumpster truck hoisting unit approaching a loaded container. Two chains are attached and the driver returns to controls in the cab. In the center photo, loaded container is hydraulically raised into carrying position. Controls in the cab permit dumping as illustrated at right. You too, may be able to adapt the Dempster-Dumpster System of Materials Handling to your business at tremendous savings. Let one of our engineers discuss this possibility with you.







Containers replaces 9 trucks....

Over \$50,000 saved annually . . . in this Copper Plant through faster, more efficient, materials handling

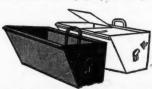
Here, in plain language, is what happened to Materials Handling costs after the Dempster-Dumpster System of Materials Handling was installed in a large Western copper smelting plant. A comprehensive Dempster-Dumpster survey had previously revealed costly delays, unnecessary handling and rehandling of materials, and much time wasted by loading crews. All have been eliminated to the tune of \$50,000 savings annually. Fast pick-up, hauling and dumping of pre-loaded Dempster-Dumpster containers has replaced the old method of plant hauling. As a result, nine of the ten trucks formerly detailed for this work were eliminated or put on other work. Ninety-nine detachable containers, built in over 20 sizes and designs for the specific materials they were to handle, were spotted at material accumulation points throughout the plant. Some containers, provided with roller bearing casters, are rolled to indoor accumulation points. Some are handled by fork trucks, other by over-

head cranes within plant buildings. As containers are filled, the Dempster-Dumpster truck hoisting unit and one man, the driver, picks each container up, hauls it to its destination, dumps it and returns the empty container for refilling or, loaded container is lowered at any point and left if desired. When you consider that pick-up and dumping of these detachable containers takes less than 60 seconds, and that the entire operation works to an on-the-run schedule, you will realize how one truck hoisting unit can handle 99 containers and do the work formerly requiring ten conventional trucks.

In the panel below are shown the basic types of Dempster-Dumpster Containers used in this installation. The basic containers can be altered with lids, casters, hose and chute connections, etc., to handle accumulations of any type material whether it be liquid, solid, dust, gas, light or heavy materials.



Forty-nine open top, drop-bottom containers in 3, 4, 8 and 10 cu. yd. capacities were spotted at 38 locations throughout the smelter operation. Four of these were 10 cu. yd. containers fitted with two end doors and a circular top opening for chute loading. Three of the 34-4 cu. yd. drop-bottom containers in this group were equipped with self balancing spring lids for special use.



Ten water tight, Titt-Type containers were required to handle liquids or moist materials. Four of these were open top of 11/2, 3 and 4 cu. yd. capacities for four locations. One 4 cu. yd. container with self balancing spring lids was provided at Lab Sample Mill. Three containers, with self balancing lids provided with pipe inlets, were supplied for receiving waste oil at three separate locations. Two 3 cu. yd. containers having three separate compartments with individual lids for each compartment, were required for the zinc electrolytic plant.



Two 4 cu. yd. skip-type, with lip, containers and two 4 cu. yd. skip-type, flat-bottom, containers were spotted at two locations. One & cu. yd. flat-bottom, skip-type container was furnished.



Thirty-three Universal-type containers in 6 and 10 cu. yd. capacifies were spotted at 33 locations to receive trash, rubbish and other bulky materials. Two of these were mounted on roller bearing casters for movement to indoor loading locations.



Two 10 cu. yd. Apartment-type containers were spotted at the main office and laboratory office to receive large accumulations of waste paper and trash.



DEMPSTER BROTHERS, Inc. 869 N. KNOX, KNOXVILLE 17, TENNESSEE



MOBILIFT DOUBLES the value of your Materials Handling Dollar



Every dollar saved on material handling costs is a dollar added to your profit. For this reason hundreds of industries, both large and small, have turned to Mobilift for lower handling costs. Field tests and actual operation have proved Mobilift saves in the following ways:

- Low first cost—low operating cost.
- Maneuverability increases handling speed.
- · Loads, hauls, stacks, without rehandling.
- Increases the effectiveness of labor.
- Operates in cramped quarters—saves floor space.

Let us show you how you can "Mobilize" for lower handling costs. The coupon below will bring you complete literature on Mobilift operation.

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This Fork Truck DOES MORF WORK

FOR LESS "PAY" because it has

DYNA-DORK Drive

Dynatork Drive, another in Clark's many distinguished "firsts" in the development of modern materials-handling methods and machines, is in production after proving itself under use and deliberate abuse in a cross-section of American industry. The most significant and advanced post-war improvement in fork-lift trucks, it commands attention and consideration because of the unparalleled economies and advantages it makes possible in materials-handling operations.

WHAT DYNATORK DRIVE IS:

DYNATORK DRIVE is a unique device available only in Clark gasoline-powered fork-lift trucks (Utilitruc model), which eliminates the clutch and the conventional transmission. By means of magnetic flux, this mechanism transmits driving force from the engine to the drive



wheels. The immediately apparent results are: flawlessly smooth flow of power, and the machine's almost instantaneous response to the directional control.

On the inside of the flywheel are two coils surrounded by magnetic fields—one for "Forward" and one for "Reverse." When one coil is energized—movement of the truck is in one direction; when energizing force is switched to the other coil, movement in the opposite direction is almost simultaneous.



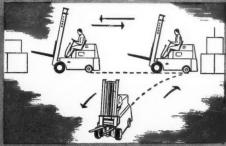
Control of energizing force—and direction of travel—is achieved through flicking the finger-tip lever mounted on the steering column. Engine speed is governed by a conventional accelerator pedal.

WHAT DYNATORK DRIVE DOES:

First—and most important—the fork truck equipped with DYNATORK DRIVE does considerably more work at considerably less cost, than a fork truck equipped with conventional power-transmission and clutch units.

DYNATORK DRIVE provides maximum provid

hauls and during acceleration, and thus increases substantially the useful daily mileage per truck. The smooth flow of



power provides unprecedented protec-

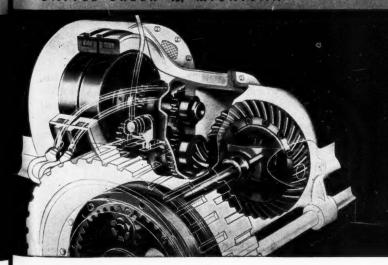
tion to materials in transit.

DYNATORK DRIVE provides unequalled simplicity of driving routine which translates into shrinkage of driver fatigue to an irreducible minimum. It prolongs tire life through virtual elimination of wheel slippage, and affords size in maintenance and series. able savings in maintenance and repair costs because it displaces major causes of shock and wear. But again—its undeni-able and overpowering advantage is that it enables a fork truck to do more work, day in and day out, at considerably less

INDUSTRIAL TRUCK DIVISION

CLARK EQUIPMENT COMPANY

BATTLE CREEK 13, MICHIGAN



Of course, you'll want to know more about Dynatork Drive. For additional information, please direct a request on your business letterhead to address listed above. You'll find that it pays to CONSULT CLARK.

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SEND FOR CATALOGS

on any of the four sizes of Payloaders: the $10\frac{1}{2}$ cu. ft. Model HA; the $\frac{3}{4}$ yd. Model HK; the $\frac{11}{4}$ yd. Model HK; also the 2 yd. Payloader Buggy.



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> Pavloaders work inside or outside, on hard floors or soft ground, in congested areas, through narrow doorways and aisles at speeds up to 16 miles per hour. They have ample power, traction and balance to dig full loads of tough materials, to carry them fast and lift, dump, load, spread or windrow them where desired.

The hydraulic bucket control gives the operator complete, precise mastery of the bucket motion-to dump loads slow or fast, partially or completely, and to close the bucket.

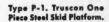
If you are still "manhandling" bulk materials, you should get the facts on PAYLOADERSthey pay, they're proven and they're sold and serviced by a Hough Distributor near you. The Frank G. Hough Co., 731 Sunnyside Avenue, Libertyville, Illinois.







Type PB-120L Truscon-Box and Platform with full length lifting lugs.

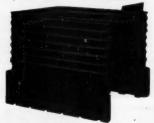


HEADQUARTERS

Material Handling Equipment



Type B-80C Truscon Box Equipped for Crane Handling.



Type PB-650 Truscon Box and Platform with sliding End Door.



Type PB-120 Truscon Steel Box and Platform.

The success of modern production methods depends upon the efficiency with which materials and products in various stages of fabrication can be handled.

Truscon's Pressed Steel Division—nationally known for the quality of its products and the dependability of its service—is fully equipped and prepared to handle your material handling equipment requirements. The Pressed Steel Division's central location, moreover, assures efficient service for all your needs. Write for free catalog describing the complete line of Truscon Steel Boxes and Steel Skids.

Write for illustrated catalogue showing complete line of Truscon Steel Boxes and Skids.



Reduce Your Costs

TRUSCON STEEL COMPANY

PRESSED STEEL DIVISION 6202 Truscon Ave. · Cleveland 4, O. Subsidiary of Republic Steel Corp.

Truscon Double Face Steel Pallet.





Type PB-120T. Truscon Steel Box and Platform with Tiering Lugs.

TAKE HIGH HANDLING COSTS FOR A"RIDE!"

Handling adds nothing but cost to your products. By eliminating wasteful rehandling, you cut those costs substantially.

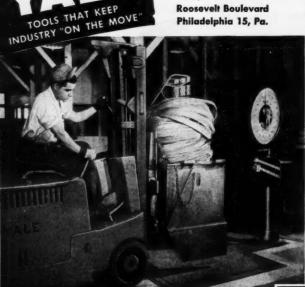
How to do it? Simply integrate efficient material handling machinery with the most practical handling system for your operations. Here's proof of what cost reductions can be made: a rubber company now saves \$80,000 a year in a single department. Material transfer costs were lowered 25% by a publisher. \$5.00 to \$7.00 per ton was cut from handling costs by a casting manufacturer.

Whatever you lift, move and weigh, Yale Hoists, Trucks and Scales will give you handling economy you never thought possible. These cost-cutting tools handle enormous tonnage at a pace that keeps receiving, processing, warehousing and shipping at the peak of efficiency. They save a tremendous amount of human effort, improve safety conditions, and contribute greatly to worker morale.

See your telephone book for the name of the nearby Yale representative. Or write direct to headquarters for help in taking your handling costs for a "ride." Do it today.

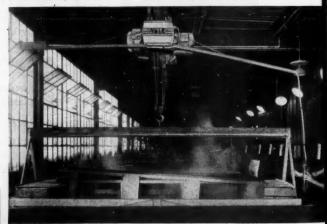
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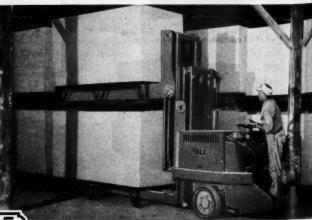
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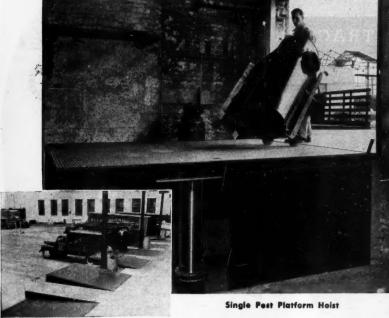








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Wayne Lift in Newspaper Plant



Easy to Handle Heavy, Rolls

Handling Costs

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INDUSTRIAL DIVISION: 19300 EUCLID AVENUE, CLEVELAND 17, OHIO



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give you safe, light handling at low cost

U. S. ROYALITE IS A TOUGH, SYNTHETIC COMPOSITION THAT OFFERS TREMENDOUS ADVANTAGES

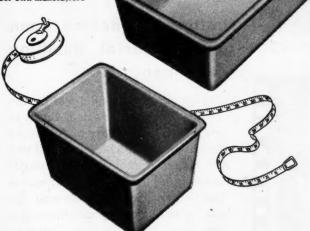
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Durable—non-warping, non-corrosive, not affected by oils, most acids, alkalis. Water-proof, stain-proof, mildewproof, easy to clean.

Cuts Down Fatigue — 1/4 weight of usual containers. Noiseless, odorless, non-conductive.

Color—Different everlasting colors for departmental or material identification.

- * 18 ready-made sizes
- * Sizes to order
- * Also in sheets for your own manufacture





Wherever you need to classify parts, and keep them classified, U. S. Royalite Tote Boxes in different colors will end confusion, make for the greatest efficiency and economy ever devised.

Ask your fabricator about U. S. Royalite. He is now serving many industries. Also, our experience in developing proper fabrication techniques is at your disposal. Our engineers will work with you gladly.



W UNITED STATES RUBBER COMPANY

2638 Pulaski Road North, Chicago 39, III.



Another demonstration of the MonoTractor drive includes a swinging jib for passage of the carrier over a truck for removal of 2 ton bundles of sheet steel. An electric hoist and a Windsor sheet grab are used.



This twin-bridge 5 ton crane is 160 feet long operating on 9 runways. Two carriers, each centered between a pair of crane trucks, can make a lift of 10 tons as shown.



Fruit, unloaded from cars on special trolley racks, rolls around MonoRail curve to a drop section where the racks are lowered to basement tracks. The racks then roll by gravity to ripening rooms.



Try 1 UPANDOVER HANDLING

before you decide upon any material handling equipment....

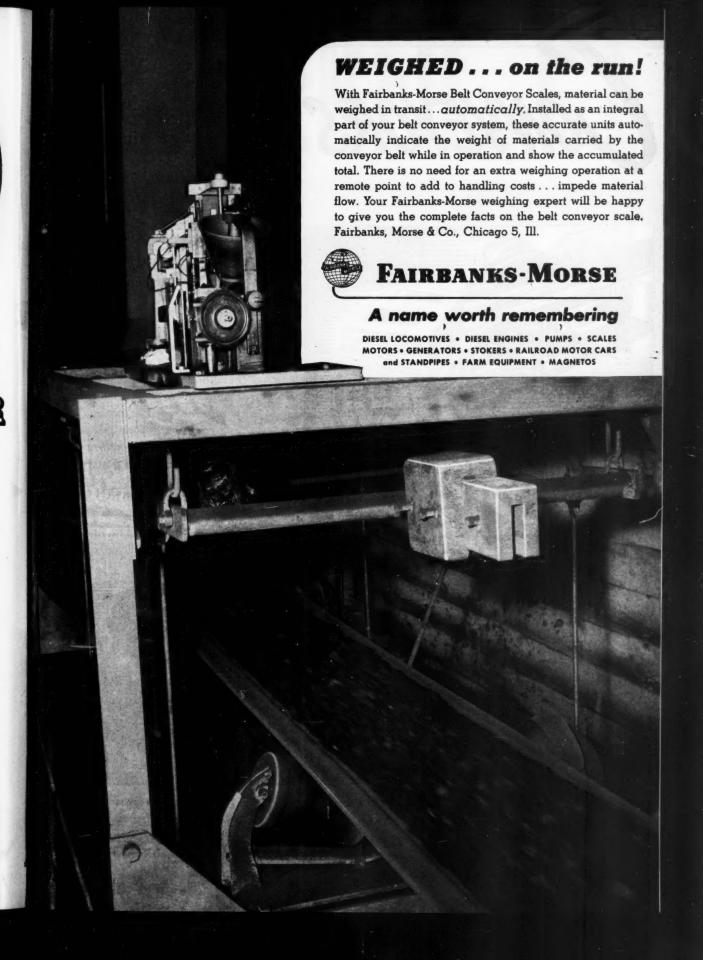
Our 16 mm black and white twenty minute sound picture will bring to you the complete story of American MonoRail overhead handling. If you are in the market for any material handling equipment, see our movie first. We will gladly loan you the film for showing in your offices at a time most suited to your convenience. Please drop us a line.

*UP and OVER is the title of our 20 minute 16 mm sound film.

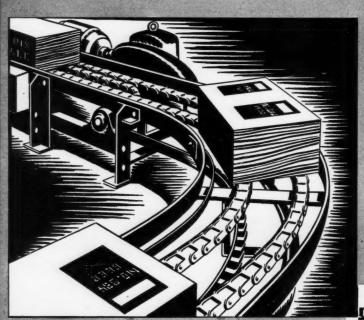
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13129 ATHENS AVENUE

CLEVELAND 7, OHIO



CONVEYORS for aspirin or airframes



Chain conveyor with G-F electric drive



screw conveyor



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Ask your materials handling equipment supplier or G-E representative to show you "Materials Handling—In Receiving, Warehousing and Shipping"—General Electric's authoritative new movie covering in detail the latest techniques and equipment, without sales bias. When you see the movie, you will receive a copy of the 92-page technical manual which supplements the film. ASK TO SEE THIS PROGRAM NOW!



apron conveyor



ortoble chain conveyes



interlocking conveyors



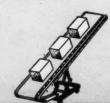
ACM.



3 GOOD REASONS? Tri-Clad induction motors are protected against physical damage, electrical breakdown, operating wear and tear. Ratings from 1 to 2000 hp.

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CONVEYOR DRIVES



CRANE DRIVES

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Among the many services we offer builders and users of materialshandling conveyor systems, two are outstanding.

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The second "plus" we offer is one of the largest and most varied arrays of electric motors, controls, and power distribution apparatus available today. Some of them are shown below. Components like these, correctly engineered into a drive will give you a system that is right for your needs, today and tomorrow. Consult with your local G-E office before specifying any conveyor drive equipment. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.



SAFE AND COMPACT! The new G-E a-c starter offers protection for men and machines in one compact unit. Easy to maintain.



ON-THE-SPOT POWER! Flamenol bus-drop cable is used for 600-volt branch circuits from bus to conveyor motors. Resists damage from moisture, oil, grease; flameproof, too.



DIAL YOUR SPEED! With a simple twist of the dial, a G-E Type ACA motor gives you stepless speed adjustment over speed ranges of 3 to 1, 6 to 1, or 20 to 1. Ratings from 3 to 75 hp.



GEARED 'WAY DOWN! You can get a wide choice of speed reduction in a G-E gear motor . . . down to a few rpm. Ratings from fractional horsepower to 50 hp.



29 TO 11 G-E Thy-mo-trol drive provides speed ranges as high as 20 to 1 from a-c power. Speed adjustment is smooth and stepless. Ratings available from 1/s to 25 hp.

GENERAL

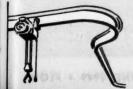


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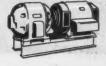
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INDUSTRIAL TRUCK DRIVES & BATTERY CHARGERS









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presses against
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electrolyte and oxidation .. close spaced for
uniform pressure against
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Well, you good salesmen of America and the "American Way," we've been having too long a siesta . . . and during our complacent dreaming the Red Comrades have been peddling their tattered and damaged goods to a lot of our prospects. With word magic and a lot of sinister hocus pocus they have half-convinced a lot of folks . . . too many of them.

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A. J. IMMESOETE

Material Handling Engineer
John Deere Planter Works
of Deere & Co.

Moline, Illinois

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NARROW FORK is specially designed for entering between discs. Three harrow gangs are handled at one time.

STUDY OF THE LOAD UNIT METHOD at John Deere Planter Works

PART II

Fork trucks, special forks and attachments, pallets and collapsible pallet boxes. Note novel semi-circular attachment designed for transporting harrow discs.

A S was indicated in last month's article, the simple parts storage area is laid out centrally in relation to the ground-floor fabricating shops and to the third-floor assembly department. Many of the

stacks in the storage aisles are within 50 feet of the elevator. It was also explained in last month's article that the one-ton loads of parts, plus the weight of the 2000 lb. capacity fork lift trucks, is within

the limit of our elevator capacity.

"Load Unit"for Elevators

Methods are in effect that will assure prompt delivery of the correct parts to the assembly depart-

The ingenuity of simplicity is illustrated with these further examples of the application of the load unit principle to a large variety of shapes (assemblies, parts and supplies) at the Moline plant of Deere & Co. See last month's article on the procedures for raw steel and certain types of parts in processing and storage. —Ed.

ments. In the morning the assembly foreman makes up a list of the required materials and sends it to the storage foreman. The stock is then picked and delivered in the order in which it is listed. Stock arrangement of the thousands of simple parts and selection are governed by a definite procedure.

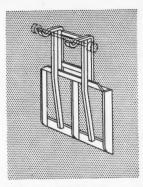
The stacks are arranged in four main categories. 1. Malleable castings. 2. Grav and white iron castings. 3. Small steel parts. 4. Large and/or long steel parts. Each group has sub-classifications for easy selection purposes. The tote boxes and stacking frames in the assembly area are tiered and detiered only by specially designated fork truck operators. Since their operations are confined to the area, they know the stock well, which speeds selection and delivery to the point of assembly on the third floor.

In the assembly department the loads are spotted adjacent to the point of use. Because of the limited floor load capacity of the upper stories in our mill type building, the loads are here stored single deck. (They are tiered high in storage on the ground floor.)

The stock of small parts is replenished from the bulk containers into the gravity feed bins at the assembly stations. In the case of high-volume items, they are used directly out of the tote boxes or racks and assembled to the unit. Again, the relation of handling to safety and good housekeeping can be observed here. The floor areas are not cluttered with an assortment of haphazard containers or parts carriers. Men are not required to perform fatiguing lifting tasks, and the sizable loads of parts entail minimum traffic for replenishing purposes.

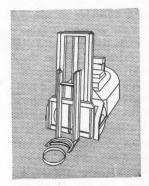
Special Forks for Completed Assemblies

The handling of harrow gangs illustrates the application of the "load unit" principle to completed assemblies. It also brings into the picture special fork truck attachments, or fork modifications, a sub-



SPECIAL LIFTING frame engages pivot bar at top of harrow frame. Sketch shows detail of engagement.



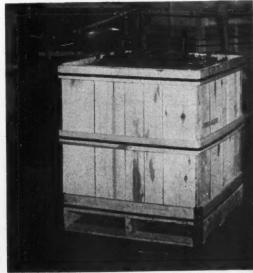


LOAD UNIT of harrow discs with semi-circular fork. Drawing shows fork design, also the welded ring.





COLLAPSIBLE PALLET box at scale. Box is held to pallet by corner pieces and steel strap. See the article.



ject which was indicated in last month's article.

The harrow gang is made up on final assembly jigs in lefts and rights, the two halves being combined into one unit by bolting together (with one bolt) the two angle iron frames constituting the gang. Such a pair of gangs may consist of anywhere from 10 blades to 26 blades. The weight may be from 400 to 960 pounds per unit. Usually three pairs of the smaller size will be carried at one time, two units of the larger size.

It may be explained (perhaps for the benefit of city dwellers) that a disk harrow consists of several blades on one axis that is attached to a gang frame by means of standards which are fastened to bearings in which the circular blades rotate. Stacks are maintained according to different sizes and numbers. From final assembly through warehousing and car loading these units are handled entirely by fork truck.

A modification of the standard forks was necessary in order to adapt them to this handling. The circular blades are spaced approximately 7 1/8" apart on the axis (known as a spool) and the fork was therefore designed to fit between these openings. It is 1 3/4" wide and 2" thick, and is thus readily inserted between the blades.

When stacked, the relation of the gang frame to the disk blades is such that the curvature of the disks gives a nesting effect (see photos). This makes a solid and safe column. As can be seen from the accompanying photos, these relatively short units (averaging about four feet in length) are stored horizontally.

Another type of harrow has 10, 12 or 13 blades on each side and is 63" to 92" long. These units would be awkward to handle in a horizontal position through aisleways and box car doors. They are therefore stored, transported and loaded vertically. The forks in this case enter the disks near the top of the load, as shown in one of the photos.

Special Lifting Frame

An exception to both of these types is the extension gangs (four disks on each side) which have a cross pivot bar at the top of the frame. It is desirable to suspend these units during transport from the top, which is necessitated by the frame extending two or three feet beyond the disks. These assemblies remain in an upright position throughout. Suspension from the fork truck is accomplished with a special attachment. This is a welded frame (inverted on the carriage of the truck) which has two curved members that engage the pivot bar at the top, as shown, holding it securely suspended.

The previously mentioned narrow forks and this lifting frame are quickly detachable, being slipped on or off the carriage in a minute. This was a primary consideration in the design. Standard forks are of course used on the trucks handling the tote boxes, stacking racks (see last month's article) and pallets and pallets and pallets.

It is not difficult to visualize how awkward manual handling of harrow gangs would be. The disks have sharpened edges and constitute a safety hazard. Their weight,



VERTICAL HANDLING of long harrows is shown here.

too, would involve the hazard of strain in lifting and stacking, aside from the waste of manhours. Fork truck handling of these cumbersome heavy shapes is safe and fast. One fork truck operator can load a car with harrows in about one hour and 10 minutes.

Attachment for Disk Blades

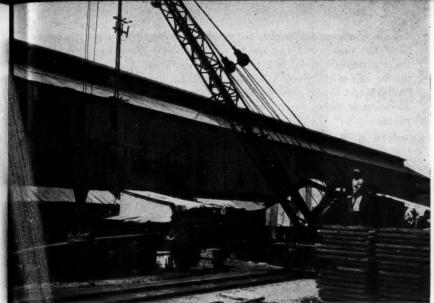
Another attachment used is for disk blades, concave shapes in 16", 18", 20" and 22" diameters which are handled in great quantity. This fork truck attachment is another type of frame which is nested on the carriage. The carrying surface is a semi-circular shape with a machined curve conforming to the convex outside contour of the disks. This is used in conjunction with steel rings made out of lengths of flat bar stock which is welded into a circle. Here are the details of the handling procedure.

In unloading from the box cars, where the disks are stacked in rows on their edges, the circular blades are placed flat on the rings. The diameter of the rings is 13", and they have a uniform height of 1 3/4". The disks nest securely on the rings as they are piled to a sufficient height to make up stable

(Turn to page 34)

TRUCKS OF 1000-lb. capacity handle the 26"x30" pallet boxes. Twice the space was formerly used with barrels.





LOCOMOTIVE CRANE equipped with 55-inch magnet delivers five tons of steel to shear house.

By T. E. PARISH

Production Control Manager Hughes Tool Co. Houston, Texas

LOCOMOTIVE CRANE
FORK TRUCKS
CRANE TRUCK
STEEL PALLETS
INSULATED SKID BINS
PORTABLE SCALE
TRAILERS

HEAVY FORGE JOB—

- EFFORTLESSLY DONE!

Standard handling tools, listed in the box, and certain production kinks are combined into an engineered material flow that is exemplary for this type of forge shop operation—from the raw material stage through processing and storage. Note, among other features, the use made of tilting type chutes and insulated skid boxes.

THE Hughes Tool Co. manufactures rock bits for oil well drilling. In its yard and forging operations, our company encountered a problem in receiving various sizes of materials, and in handling redhot forgings. Each day more than four 50-ton carloads of billet stock are received, converted into forgings and subsequently stored prior to manufacture.

Locomotive Crane Handles Pipe, Billets

Billet stock is received and stored along a 2100-ft.-long railroad track. The cars are unloaded by a 35-ton locomotive crane which has a 60FORK TRUCK places 4000-lb. pallet load on five-foot racks adjacent to pusher-type furnace.



OPERATOR ACTUATES pedal to raise tilting chute. Forgings thus flow by gravity between forging presses.



ft. boom equipped with a 55-in. magnet. The storage practice is to store the faster moving materials adjacent to the shear houses which are located next to the forge shop. In this way, the crane can load stock at the shear house by simply rotating its boom. The magnet has



PLATFORM SCALE, on which forgings are weight-counted, is mounted on runners.

a capacity of five tons per lift.

Another duty performed by the crane is that of unloading steel pipe from incoming rail cars. This material is designated for another phase of production, which is not described here.

The incoming billet stock ranges in length from 28 to 35 ft.; in square sizes from 21/2" to 6" square. Material up to 4 3/4" is delivered directly to the shears, whereas material five ins. and above is delivered to an adjacent torch cutting shed where it is flame sheared. Completed stock, whether torch cut or sheared, is placed on 42" x 42" four-way entry reversible steel pallets. The billets (totalling 4000 lb, in weight) are loaded in pyramid fashion to prevent the heavy stock from falling. The material need only be tiered four or five rows high in order to reach the load limit. At this height, pallet stacking is feasible.

Air-Operated Chutes Between Presses

The loaded pallets are taken from billet storage and placed by a fork truck on a five-ft.-high platform, whence the material is fed into the furnace. Within the forge shop, a number of air-operated chutes move the red-hot forgings from press to press. The operator of the first shear tosses the forgings

down a chute onto a flexible section. The operator of the second shear actuates a pedal and raises the far end of the chute to a sufficient height to use gravity. This operation is shown in one of the photos.

After being trimmed, the forgings drop through the die onto a 12" x 22' drag chain booster conveyor. Placed at an angle of 25 degrees, it raises the units approximately six ft. above floor level. A discharge chute equipped with a two-way deflector is located at the end of the conveyor. Beneath the deflector are spotted insulated skid boxes which receive the stock. By using two boxes, no work stoppage occurs.

The skid boxes have double insulated walls and are 38" x 42" x 40" on the outside, 32" x 38" x 30" inside. The void between the two walls is filled with mica insulation approximately 2½" thick. The containers are equipped with special lids which are also insulated and whose handles are designed for fork truck handling, a necessity because of the extreme heat generated



INDUSTRIAL CRANE TRUCK remove forgings from bin with magnet.

by the red-hot forgings. The boxes allow the material to "slow cool", thus eliminating the necessity of a normalizing operation later on. This cooling method also eliminates stresses within the piece parts which are often set up when ordinary air cooling is employed. The forgings remain in these containers for 24 hours, then are delivered to the shot blast department for removal of scale.

End-Dump Hopper Skids

Forgings from each heat number are separated in outside storage bins. After the stock is shot blasted, it is deposited in end-dump hopper skids, and transported by fork trucks to bins in the storage area. The load within the hopper moves the center of balance forward when released by a catch. As the material is demanded by manufacturing, a 3000-lb. capacity crane-



TRIMMED FORGINGS are discharged by portable conveyor into insulated skid boxes.

truck equipped with a 24-in. electric magnet picks it out of the storage bins and deposits it into standard shop skids. The magnet handles up to one ton per lift.

Before the skid loads are delivered to the manufacturing department, they are weight-counted on a pallet-mounted platform scale having a capacity of 5000 lb. Company engineers welded two I-beam runners to the bottom of the scale so that it could be moved from place to place within the storage area. The portable scale minimizes vehicle travel. The loaded skids are removed from the scale, placed on heavy-duty trailers and towed to manufacturing.

The foregoing describes how manual handling of billet stock and forgings is completely avoided at the Hughes Tool Co. through engineered handling methods, which integrate mounted cranes and fork trucks in an effortless operation.

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FORK LIFT TRUCKS
and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION





LEFT—AUTOMATIC GRAB selects and moves load to point of use. Tiering racks like this are widely used.

RIGHT—TOTE BOXES are here tiered—without crane followers, who no longer have to climb up stacks.

INNOVATION IN GRAB DESIGN . . .

Grab

WITH POWERED TURNTABLE

Carrier Corporation introduces a new grab design which incorporates a turntable for rotating the load, and long legs that can pick up lifts 80" deep. Two important benefits: 1. Better working conditions because elimination of climbing has resulted in a safer operation. 2. Faster delivery of materials with less effort.

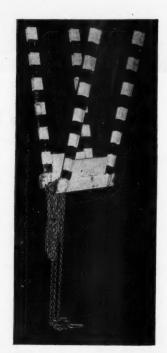
By DONALD W. PENNOCK Carrier Corporation, Syracuse, N.Y.

A ninnovation in grab design, variously illustrated here, has been developed according to specifications by Carrier Corporation engineers. An unusual feature of this load-supporting type of grab is that its bail is mounted on a powered turntable which rotates the suspended load 90 degrees in either direction. Also on the unusual side is the length of the grab legs, which

can accommodate loads about 80 ins. deep.

Employed in production, maintenance and control operations, the grab is used for hauling loads through Carrier's 60' wide x 920' long x 41½' high crane bays. The operating mechanism is designed particularly for handling steel pallets, skid bins, tierable rack sections, as well as maintenance equipment. The grab is seldom removed from the crane hook. For the few items which are not adaptable to grab operation, the grab frame in-

(Turn to page 5.2)



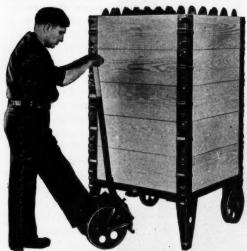
SKILLED CRANE operator can pick up piece of chain as easily as 8000-lb. load.



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MATERIALS HANDLING Saves 50% Floor Space, Labor and Equipment

Deliver the Bin and Save the Handling



Bin Sections, Die Racks, Tables and Trays fit on the Transport which is moved by hand Jimmy, power lift truck, crane or tractor.

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Bin Sections are added as load increases, removed as load diminishes; always the RIGHT SIZE bin.



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SERVICE

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3 Benefits

MORE STORAGE SPACE DOLLARS SAVED

By R. O. Erickson

Material Handling Supervisor Morse Chain Co., Div. of Borg-Warner Corp., Ithaca, N. Y.

RECENT revisions in its material handling system have speeded the work flow, added space, and cut costs at the Morse Chain Co., Ithaca, New York. This company manufactures roller, power, and automotive chain.

Receiving operations were facilitated by an electric hoist and a special pickup element. Shipping operations were improved by installing a scale as an integral part of the shipping room roller conveyor. Waste handling, loading and unloading elevators, transporting sprockets, and other miscellaneous handling operations were studied and assigned to a new fleet of fork trucks.

Hoist Cuts Seven Hours

Sheet steel is hoisted to the thirdstory sheet metal department by a one-ton electric hoist, which travels on a beam extending over the plant yard. A long cable permits the operator to control the raising and lowering of the load (by push-button control) when the hoist is at the far end of the beam.

The sheet grab used is shown in

Here are some of the main improvements effected with a modern handling system: 1. Sheet steel handling was cut from eight hours to one hour. 2. The pallet-fork-truck method tripled available storage space. 3. Thousands of dollars were saved through improved methods on the packing line, miscellaneous operations, and in scrap disposal.



HOIST WITH special pickup attachment for sheet steel. Three clamps prevent sheet bending.



STEEL STRIP in temporary storage. Pallet tiering increases available area for storage.

one of the photos. Previously, a chain was wrapped around the stacked sheets and the hoist hook attached to the chain, which caused the bundle to sag when lifted. This deformed the steel and made the handling job difficult. The new yoke-type hook attachment has three pairs of grips, which hold the sheets rigid during hoisting operations. The elements which engage the sheets are adjustable so as to



SCALE PLATFORM makes up a section of the shipping conveyor. Note steel strapping.

handle stacks of various thicknesses. The hoist installation has made it possible to do a job in one hour which previously took eight.

Movement Between Processing Stations

Strip metal from which elements of roller, silent, and automobile chain are punched, is pickled and then rolled to the desired thickness in the mill. As the strip leaves the finishing rolls, it is coiled, bound, and placed on pallets. Strip is rolled in one, two, and three-inch widths and in different thicknesses for various gages of chain. Small coils (about four feet in diameter) are stacked 15 deep on standard-sized pallets, and then weighed. Loads weighing up to 2400 lbs. are taken either to the press room or to temporary storage areas.

One stacking type hand pallet truck and two riding type fork trucks are used in the operations. The hand-operated unit is especially valuable in tight places. It is handle-guided from the floor and is propelled by an electric motor controlled from the handle. A

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> Imitated but never equalled for Design, Maneuverability and Stability.

The Moto-Truc Company was the first to design and build motorized battery operated hand trucks in the following types:

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Moto-Trucs are not only famous for original design but are outstanding in developments that insure easy maneuverability and control plus safety to both operator and loads.

Write for Literature





Stevedore, Jr. power belt conveyor saves manpower!
Rapistan case histories show that the average saving in handling materials with one Stevedore, Jr. (loading, unloading, stacking, etc.) is equal to the work of three men. Often that means a payroll saving of more than \$5000 a year! More than 10 times the cost of a Stevedore, Jr.

→ Here are some typical examples: Five men used to take ten hours to unload a boxcar. With Stevedore, Jr. belt conveyor, two men unload in little more than four hours, saving five-sixths of the manpower! Where four men needed two hours to load rugs in a truck, Stevedore, Jr. helps them load in half an hour—just one-fourth of the former time! By reducing handling time to an absolute minimum, Stevedore, Jr. makes it possible for a smaller crew to handle a larger volume of work in less time, with less effort.

Stevedore, Jr. conveyor is just one of many Rapistan Material Flow gravity and power conveyor products specially designed to help you eliminate unnecessary manpower... and to move materials with maximum efficiency.

Needless handling eats profits! Cut your manpower costs! Install

Rapistan material flow equipment. Whether you need a short-length gravity conveyor or a complete inter-floor system, Rapistan equipment will solve your problem. Rapistan equipment is low in cost, easy to install. It quickly pays for itself and continues to make profits for you indefinitely.

THE RAPIDS-STANDARD COMPANY, INC.
27 Rapistan Building Grand Rapids 2, Mich.



Rapistan

MATERIAL HOW EQUIPMENT

Representatives in all Principal Cities



method used at this plant is the placing of channel irons over the forks to extend their length when lifting large loads.

Formerly, coils of steel were loaded onto skids by hand, but now larger coils are tiered onto pallets by forks. The savings effected by the use of fork trucks in these handling and transportation operations run into thousands of dollars per year.

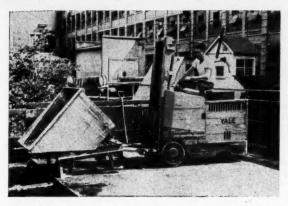
Storage Space Tripled

The greatest single improvement in the handling system was made in the efficient use of space for coiled strip and assembled chain. Previously, both strip and chain were stored single deck. As the inventory increased, operating difficulties resulted. Congested areas, overflow of skids into aisles and work areas, and an uncoordinated flow of materials to and from the storage zone were the main drawbacks.

The new system also makes use of specially-designed stacking-type skid bins. Their advantage is in tripled. The storage area for strip is roughly 60' x 24', and was likewise increased three-fold. The fact that the bins have no walls makes it possible to tell at a glance what type of chain is in them, and chain can be removed from lower bins without disturbing those tiered above. The overall effect of the new equipment: 1. A neat-appearing temporary storage department. 2. Easy handling of chain. 3. Quick, effortless transportation of material to and from assembly, temporary storage, and shipping departments. 4. Better inventory control.

Waste Handling

Another job performed by the fork truck is the handling of turnings and other scrap metal. The Ithaca plant is located on a hill and use is made of the gravity principle. Separate bins for slugs, turnings, and punched-out strip have been constructed on the hillside and the material empties directly into rail cars below. Scrap is collected in large skid dump-hoppers within the plant. The full hopper is picked up by the fork truck, carried to the



POWERED FORK TRUCK dumps punchings and turnings into bins for delivery to rail cars on lower level.



SPECIAL TIERED SKID racks for assembled chain afford easier. identification, accessibility, convenience.

refuse bins, and dumped as shown in one of the photos.

Weighing the Cartons

Finished automotive chain is placed in skid bins on the second floor and is taken by elevator to the first floor for packaging in cartons, weighing and shipping. Two fork trucks operate as a team in this operation. The truck on the second floor transports the skid bin and loads it onto the elevator. On the

lower floor, the other fork truck picks off the loads and transports them to a roller conveyor for packaging. Meanwhile the truck on the upper floor has resumed loading the elevator.

Packaged chain is placed on a conveyor by hoist along which an operator is stationed who binds the cartons with steel strapping. Some chain is boxed for shipment in the shipping room. A half-ton-capacity electric hoist with a special grab

is used to lift full boxes onto the conveyor. The hoist is operated by a bar grip control which the operator manipulates with one hand.

The prepared cartons and boxes move onto the scale platform, which is a section of the gravity roller conveyor. This scale has a capacity of 1000 lbs. An operator halts the individual cartons and boxes, notes the weight, marks it, and sends the units on their way via a semi-belt and roller conveyor



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3838 Grand River Ave., Detroit 8, Michigan

to the shipping platform. Here they are put on skids and pallets and loaded onto highway trucks.

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It has been shown that new equipment and a new material handling system have achieved the following results at the Morse Chain Co. plant:

1. Three electric fork trucks have added storage space to the plant, decreased manual labor required in handling operations. facilitated storeroom operations, and speeded miscellaneous handling. 2. Electric hoists have cut handling time and made easy work of jobs which were formerly awkward and time-consuming. 3. Special small pallets have made it possible to tier small coils of strip steel without consuming the space large pallets would demand. 4. Skid bins allow the contents to be easily identified, transported, and the material in the lower bins is accessible. 5. Scale installation makes possible the weighing of packaged chain without removing the carton from the conveyor, thus saving two handling operations.

LOAD UNIT STUDY . . .

(Continued from page 24)

one-ton loads. The 1 3/4" height of the rings also provides the necessary underclearance for entry of the semi-circular fork. As the load is picked up by the fork truck, the ring remains behind in the unloading area.

When the operator enters the main aisle in the adjacent storagefabrication room, he takes a ring off a pedestal in passing by. At the stockpile, the operator drops the ring in front of the load. By means of the semi-circular fork he can engage the ring in spotting it in the exact center of the column of disks. The load is then lowered on the ring for storage. The same semicircular fork handles the one-ton stacks of disks during subsequent moves in the factory and the warehouse. The ring is left behind whenever a load is picked up, and a

pedestal with rings is available wherever the loads are to be deposited.

Power handling of the loads avoids any contact on the part of the men with the blades, as well as rehandling. Previously, when disks were stacked manually, the columns were arranged so that they leaned against each other for stability. If any stack spilled, other columns were affected. Now each column, nested securely on its own ring, is independent of any other stack. The one-ton loads can be moved at will. It is not difficult to see what this handling procedure means in terms of an easier operation, safe practice and good housekeeping.

When disks are loaded into cars, the stacks are spotted in the outbound carriers without rings, and the individual columns are blocked. At John Deere branch houses, the regular destination for these shipments, a lift truck with the same type of semi-circular fork picks up the loads from the car floor and delivers them to the point of use. The thin fork can also be inserted under the convex outer surface of the disks without the use of rings. Within the plant, for reasons of greater stability and safety, the loads are again stored on rings.

Pallet Boxes Avoid Rehandling

Another type of load carrier is the collapsible type pallet box, mounted on a 32" x 32" single face wooden pallet. The sides are 30" high and made of 3/8" wood with 5/8" supporting cross members. Three bands of 1/2" steel strapping support the assembled box at the bottom, top and center. Formed sheet metal corner clamps are used to hold the sides of the box to the pallet base—the only fastening used. (Nailing mutilates the wood and weakens the construction.) The clamps are held to the four corners with the aid of the bottom band of steel strapping. The clamps also serve as "bumpers" at the vulnerable corners. The corner pieces have finned ribs which add to their strength and also serve to hold the



Farquhar Conveyors load direct from production line... eliminate bottlenecks for Users in ALL Industries

Users in all industries report lower handling costs when they conveyorize with Farquhar. Here are a few cases:

CHAMPLAIN VALLEY FRUIT CO., of Burlington and Rutland, Vt., handles all types of packages, bags, bales, boxes, faster and cheaper with the Farquhar Conveyors shown above. T. G. Lumra, vice-president, says: "... Farquhar is the answer to handing consumer-sized packages ... eliminates bottlenecks at trucks. And conveyors may be reversed to pick up incoming loads in addition to regular production line loading."

A LARGE PAPER MILL installed a series of eight Model 346 Farquhar Conveyors at a cost of \$15,000 to speed up handling of coal from cars to pulverizing plant . . . and now saves between \$25,000 and



CUTS MAN-HOURS FROM 32 TO 4 with Model 431 Farquhar Freight Conveyor (54 feet long, 18 in. belt) unloading cars in hay, grain and feed warehouse. Operation that previously took 4 men one day, now takes one man 16 day, with Farquhar Conveyor halp.

\$30,000 yearly on trucking charges alone. A MERCHANT reports his Farquhar Freight Conveyor delivers crates faster from trucks to a second floor cleaning room at half the cost of other methods—and handles twice as many crates.

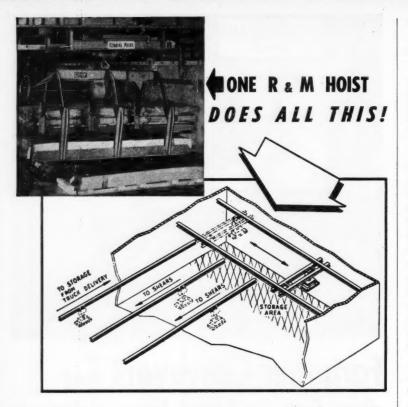
Hundreds of similar stories from laundries, food processors, grain and feed mills, chemical and paper plants, contractors, warehouses, echo, "more man-hours saved . . . handling speeded up . . . over-all costs reduced," with Farquhar Conveyors.

Whether you stack, pile, load, unload, or move materials from floor to floor... whether it's bags, bales, boxes, cartons bundles, any kind of packaged or bulk materials—Farquhar has the right materials handling conveyor to do your job faster, better, cheaper. Tell us your handling problem; we'll give you the information you need.

Write for information to: A. B. Farquhar Co., Conveyor Division, 206 Duke St., York, Pa., or 616 W. Elm St., Chicago 10, III.



HYURAULIC PRESSES . FARM EQUIPMENT . FOOD PROCESSING AND SPECIAL MACHINERY



Used with traveling bridge it unloads delivery trucks; carries standard 5-ton bundles to storage, moves sheets to shears. One operator handles this efficient, money-saving system.

SAVES UP TO \$8 A TON ON STEEL

This capacity hoist permits purchase of steel in 5-ton bundles, and saves the 7½c to 40c per hundred weight premium charged for purchases in less than bundle lots. The speed of unloading lets you get trucks away from the dock faster . . . cuts demurrage charges. Faster unloading releases man power for other purposes. These savings will pay the cost of the hoist in a hurry.

There is a size and type R & M hoist for every lifting purpose. So, "Take it UP with R & M." WRITE FOR DETAILS, explaining briefly your lifting needs.

ROBBINS & MYERS · INC.

• HOIST & CRANE DIVISION •
SPRINGFIELD 90, OHIO • BRANTFORD, ONTARIO

MOTORS . FANS . MOYNO PUMPS . FOUNDED 1878

steel strapping in place.

This box is chiefly a shipper. Our plant receives a large quantity of malleable iron castings from a separate foundry, which are shipped in these units. The same box is also used for shipments of a large volume of repair parts to our branch houses.

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As the repair parts come from final operations they are inspected and counted directly into this type of box. A specific number of each particular part has been predetermined per box, enabling the repair parts department to make shipments without recounting. A weight check is the only other check made. Thus there is only one handling of individual parts from the end of production (through storage and shipping) until the containers are unloaded at the branch houses.

The empties are returned to us collapsed. The only exception is when they are loaded with returned goods at the branch houses.

Load Units for 1000 Lb. Trucks

In last month's installment it was mentioned that we operate 2000pound capacity fork lift trucks both on the ground level floors as well as on the upper ones. These trucks handle our processed and finished parts as well as some of our whole goods through manufacture. However, in our Hardware Stores we have standardized on a 1000-pound fork lift truck because the average load is less in weight and because we wanted to take advantage of narrow aisles in this department. For operation in this area we have developed a 26" x 30" pallet as well as a box pallet on the same size base. These pallets and boxes are used in receiving and distributing such purchased small hardware items as bolts, nuts, springs, etc., which are required in the production of farm implements.

The pallets hold four kegs, which gives us an average load of approximately 800 pounds. For future use we may design and build a small container to which this kegged material would be transferred as it is

received. This container would be detachable and could be handled by one person. Other advantages would be more efficient use of the cube and a better container in relation to our assembly benches. Thus the purpose of safety and good housekeeping would also be served. Dozens of different types of manufacturing supplies are regularly handled on these small pallets.

The box used for small hardware parts is 19½" high, as compared with the 30" height of the collapsible pallet box (for shipping parts to our branch houses). This smaller container gives the required load for the 1000 lb. trucks. The smaller and narrower truck maneuvers well in confined assembly areas. With these boxes, we now store the same amount of material in one tier which formerly required two tiers with wooden barrels.

Credit Given Modern Handling

We have come a long way since we discussed the methods and equipment used for a multiplicity of materials, ranging from 12' lengths of raw steel to harrow disks of 16" diameter, from simple parts an inch in diameter to forgings and formed shapes six feet long, including the additional items indicated in these later paragraphs. Whatever the item, a standard load carrier-or fork truck attachment-has been developed to handle it safely, economically and without physical exertion, both in relation to 1000 lb. and 2000 lb. capacity fork trucks and the elevator and floor load capacities.

In the last two years this plant of our company experienced a 48 per cent volume increase with only a 20 per cent increase in the total number of employees. While process and product improvement share in this achievement, a considerable part of the credit must be given our engineered material handling system. As this is being written our studies are continuing under the able leadership of our Works Manager C. H. White, in a sustained effort to systematize all phases of our complex operations.

Which of these LAMSON SERVICES do you need?

Conveyors

Pneumatic Tube Systems

Blowers and Exhausters

Automatic Pallet Loaders

Industrial Vacuum Cleaning Systems

Dryset Vacuum Systems for Garment Presses

ALL designed, built and installed by Lamson with a nation-wide sales, engineering and installation organization.

Write us for bulletins on any of the above equipment.

LAMSON

1300 Lamson Street

Syracuse, N. Y.

Branch Offices in Principal Cities

INSTITUTE CHAPTER AND ASSOCIATION ACTIVITIES

THE Material Handling Institute, Inc. has incorporated the American Material Handling Society as a corporation in the state of Delaware. Officers of the society are: President, Walter Metcalf, Boston; vice president, Roger N. Burgess, Detroit; secretary, Irving M. Footlik, Chicago; and treasurer, W. W. Phillips, Indianapolis. Metcalf has announced that a meeting of the Society's board will be held in Cleveland, probably in June. The board consists of the

and Material Handling Engineers held its first dinner meeting of the season at the Henry Hudson Hotel, New York, on April 20. W. Gordon Bennett, president of the Eastern Division, presided.

THE April meeting of the Northeastern Ohio Chapter, Cleveland, heard Harry E. Stocker, Harry E. Stocker Associates, Inc., consultants. His subject was "Fundamentals of Material Handling." Members and guests also viewed a A GROUP in Fort Wayne, Indiana, will shortly formulate a Chapter in that city. W. W. Phillips, vice president of the Indiana Material Handling Society, Indianapolis, has aided in the organization of the Fort Wayne group.

MEMBERS and guests totaling 165 at the April meeting of the New England Chapter heard James E. Trask, Jr., division engineer, Coated Abrasives, Minnesota Mining & Mfg. Co. The title of his talk was "Engineering Old Plants for Material Handling." The meeting was held at the University Club, Boston. Trask was one of the prize winners in the 1947 FLOW Cost Analysis Contest. The May meeting of the Chapter presented Frank Lindquist, of Crompton & Knowles, as guest speaker.

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H. W. CONKLIN, president of the Material Handling Institute, has appointed a special group to be known as the Cap and Gown Committee. The group will build up a framework of procedure for the development of college programs in cooperation with the material handling Chapters or Societies. The programs will be similar to the one recently held at Purdue University. The next conference has been scheduled at the University of Toledo, June 13, 14 and 15. Two days of the meeting will be devoted to talks and panel discussions, while the third day will feature plant visits in the Toledo area. Guests will be given their choice of two of the six trips which are scheduled. A dinner meeting, cocktail party and evening entertainment are also included in the program. Reservation requests should be addressed to the Toledo Chapter, c/o I. A. Degner, 2154 Maplewood Ave., Toledo. The price is \$20 per person, which includes the evening dinner meetings.



The following are the 1948-49 officers of the Central New York Chapter (Syracuse) of the American Material Handling Society. From left, H. R. Bungay, Jr., treasurer; Allen K. Strong, president; D. W. Pennock, vice president; and P. E. Hickey, secretary.

above four officers and a representative from each of the Institute chapters, or local societies, now organized.

MANY of the June meetings of the various Institute Chapters will be devoted to plant visitations and social get-togethers at local country clubs. The Northeastern Ohio Chapter, Cleveland, will visit the plant of the Timken Roller Bearing Co. in Canton. The members and guests of the Midwest Material Handling Society, Chicago, will spend the morning of June 14th at the Acme Steel Co., with the afternoon devoted to golf and other social activities. The Detroit Chapter will have its annual "roundup" at a local country club. A dinner will highlight the day's activities.

THE Eastern Division of the Society of Industrial Packaging

sound film, "Modern Material Handling". It was presented by the Edison Storage Battery Division of Thomas A. Edison, Inc.

J. KLINE of the Mercury
Mfg. Co. will speak at the
June meeting of the Houston
Chapter of the Material Handling
Institute, Inc.

THE newest Chapter of the Material Handling Institute held its inaugural meeting at the Kentucky Hotel, Louisville, April 28. The group will be known as the Falls' Cities Chapter. The program was in charge of Leonard Murphy of the Colgate Palmolive Peet Co., Jeffersonville, Ind. Forty members were present at the initial gathering and it is expected that the group will organize committees to set up a program for the balance of 1949.

CONSULTING ENGINEERS DIRECTORY

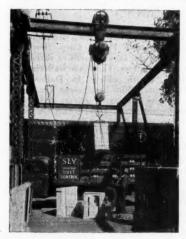
Delos M. Palmer & Associates
Consulting Engineers
Electrical, Mechanical, Industrial
Processing, Plant Layout
Machine Design, Product
Development, Special Problems
Toledo 12, Ohio
4401 Jackman Rd. KI-9611

MATERIALS HANDLING ENGINEERING

By a group of practical engineers, thoroughly experienced in all types Materials Handling, in production as well as warehousing. Further information without obligation.

> GEMAR ASSOCIATES Greenwich, Connecticut

ELECTRIC HOIST CUTS LOAD-ING TIME 50 PER CENT—This 10-ton electric hoist has cut the time required for handling outgoing shipments by more than one-half at The W. W. Sly Co., Cleveland. It has a lifting speed of 12 ft. per minute. The outgoing cases, weighing from one to 10 tons, are transported from storage

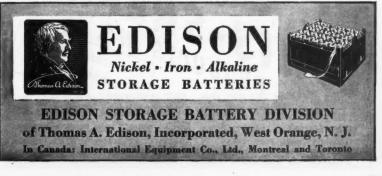


zones to street-truck or rail car. The hoist is trolley-mounted on an overhead I-beam. The latter is also trolleymounted on an overhead I-beam. The latter is also trolley-mounted and travels the length of the shipping platform along an overhead structural-steel runway. Thus the hoist has two-way travel and can accurately spot outgoing cases into carriers. It is mounted perpendicularly to the I-beam so that it can place or pick up material in close proximity to the supporting columns of the runway. The attachment is tongtype grab.-Courtesy, Yale & Towne Mfg. Co.

How continuously it works is what counts



EDISON batteries give you many advantages: they're mechanically durable; electrically foolproof; quickly and easily charged; simple to maintain; not injured by standing idle. Get a current EDISON price quotation—you will probably find initial cost MUCH LOWER than you think. Couple this factor with well-known EDISON long life and you will have the key to year-after-year economy.





News From The Sales Field

MACHINERY & SUPPLIES CO., INC., Kansas City: it has been appointed distributor of Hyster lift trucks, straddle trucks and mobile cranes. Under the direction of George W. Gagel, president and general sales manager, the firm will handle Hyster sales and service in 60 counties of western Missouri, in 31 counties of Northwestern Oklahoma, and all of Kansas.

JAMES I. FERRIS has been named sales manager of the Clark Hopkins Equipment Corp., it was announced by Clark Hopkins, president of the company. Ferris joined the company recently after leaving his position as New York district manager of the American Pulley Co.

THE Salsbury Corp. has appointed the following distributors. Preston Faller, Seattle; H. G. Davis, Inc., Boston; Industrial Power Equipment Co., Kansas City; Thomas C. Ingerman Co., Milwaukee; George C. Lever Co., Jersey City; Rapids Handling Equipment Co., Buffalo; Wiese Planning & Engineering, St. Louis; C. H. Collier Co., Dallas; R. F. Harrelson & Assoc., Birmingham; and March Equipment Co., Chicago.

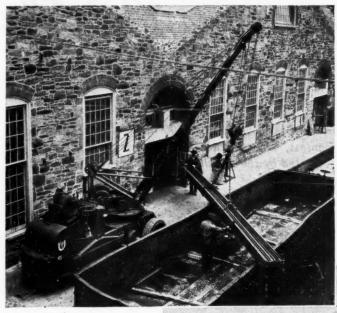
HARRY I. MILLER, president of National Pallet Corp. has announced the appointment of three new representatives. These are Gallrein and Towne, with offices in Dallas and Houston; Ohio Equipment Co., with offices in Cleveland, Akron and Mansfield; and E. J. Ferrell and Co., with offices in Buffalo and Rochester.

THE Whiting Corp. has announced the appointment of the following representatives. Patton Equipment Co., Inc., St. Louis and Kansas City; Dearborn Fabricating & Engineering Co., Dearborn, Mich.; Central Rubber & Supply Co., Indianapolis; Western Machinery Corp., Portland, Oregon; Western Machinery Corp., Seattle.

M cCALL-BOYKIN CO., INC., Baltimore: this company has been appointed distributor by the Hyster Co. The firm will handle Hyster lift trucks, straddle trucks and mobile cranes in the vicinity of Baltimore. It is headed by W. S. Boykin, president, and John M. McCall, vice president.

RAYMOND L. SMITH ASSOCIATES, New York, has named the Davidson Industrial Contracting Co., Brooklyn, as service representative. Smith (Turn to page 53)

Expedite MATERIAL HANDLING STORING—ASSEMBLING



with

LINK-BELT SPEEDER

Shovel-Cranes

Cargocrane unloads strip steel at factory warehouse. Low slung and with telescopic boom, it can carry its load right into the building.

Zephyrcrane makes light work of unloading and piling poles.



UC-55 expedites handling of heavy steel castings.
HC-70 Truck-Crane in wide area storage yard. With speeds up to 30 m.p.h. the Truck-Crane cuts travel time to minimum.





This book illustrates and describes many different applications of Link-Belt Speeders to material handling. You'll find helpful information and suggestions here — Send for a copy — NOW!

Loose or bulk material, steel and lumber, product parts in course of assembly—you handle any or all of them effectively with Link-Belt Speeders.

Lifting attachments are quickly interchangeable to provide hook-block, grapple or clamshell bucket for any specific type of material.

Link-Belt Speeder wheel-mounted cranes range from the YC-9 with a lifting capacity up to 10 tons, to the HC-90 truck-crane with capacity of 25 tons, and boom lengths of 100 feet plus jib.

11.483



Communications Cut Hanlie



MOBILE RADIO unit installed on rear of straddle truck.



THIS PHOTO shows radio controls mounted in the cab of the truck.

This paper, third prize winner of \$200 in the 1948 FLOW Cost Analysis Contest, demonstrates the savings and increase in efficiency effected by the installation of a two-way radio control system on straddle trucks. All savings in dollars, time and production are given in specific figures.

THE operation described here consists of the movement of semi-finished and finished steel bars and tubes to and from the various operations in the 250-acre plant site of our steel mill. The longest individual haul is approximately 1½ miles, with an average haul of from ½ to ¾ mile. The equipment consists of two 30,000 lb. capacity straddle trucks.

To understand the problems in dispatching these units, it is first necessary to know something of the manner in which they pick up and carry their load. A load unit handled by this equipment consists of one to four bales of steel bars and tubes, independently bound, and weighing from 5,000 to 10,000 lb. per bale. The load is placed on a bolster—a pallet of a sort—specially designed to fit the engaging device of the truck.

Difficulty of Locating the Trucks

It was desired to have the trucks operate under an "Open Control System"—that is, any truck to serve any place at any time. No vehicle was pre-assigned to any particular department for its work alone. A great irregularity in the material flow occurs because of the nature of the Finishing Department's operations. Repeated oper-

ations by the same set of machines on the same tubes and bars slow down the flow into the machines. At other times, the absence of repeat operations creates an abnormally accelerated flow of material to the same production equipment.

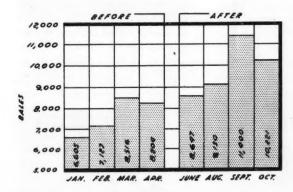
This makes it necessary for the dispatcher to contact the operators quickly and frequently. Calls for straddle truck service are received constantly. The lack of direct contact between the trucks and their control resulted in the loss of many "cross hauls", and a slower response to any given requirement because of the interval of time required for the dispatcher to contact the traveling vehicles.

The original method of controlling the movements of the two machines was by a single dispatcher who received requests for service by telephone and then, somehow, managed to make physical contact with the trucks to execute the orders. Because the trucks require so little loading and unloading time, there was no reason for any unit to stop except to permit the operator to have a meal or service the vehicle. This fact made the effort of physical contact with the trucks during working periods very difficult and ineffectual. An attempt was made to utilize a second

inling Costs

By EDWARD C. GUMPF

Material Handling Foreman Steel and Tube Division The Timken Roller Bearing Co., Canton, Ohio



TOP—GRAPH A—Total work requirement in bales. Bottom— GRAPH B—Total work completed in bales as related to operating hours.

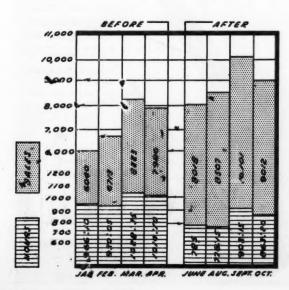


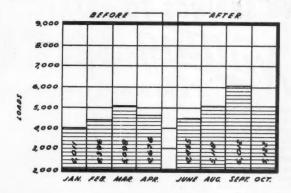
TABLE	1 - SUA	MARY	OF PER	FORMA	NCE D	ATA
	January	February	March.	April	Totals	Averages
Requirem	ent					
Bales	6605	7127	8516	8204	30,452	7,613
Completic Bales	on 6040	6713	8223	7986	28,962	7,240
Completio Loads	on 4011	4396	5098	4676	18,181	4,545
Operating Hours	966:10	930:05	1028:35	1014:10	3,939	984:45
Bales Per Hour	- 6.25	7.21	7.99	7.87	29.32	7.35

	A	fter Ra	dio Insta	llation		
	June	August	September	October	Totals	Averages
Requiremen	t					
Bales	8647	9130	11,400	10,221	39,398	9,849
Completion Bales	8018	8507	10,101	9.012	35,638	9 000
	0010	0001	10,101	3,012	00,000	0,000
Completion Loads	4455	5118	6,012	5,122	20,707	5,177
Operating Hours	785	778:15	903:15	863:20	3329:50	832:27
Bales Per Hour	10.21	10.93	11.18	10.44	42.76	10.69

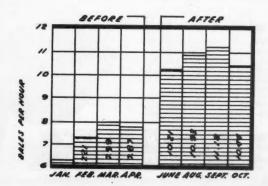
May has been excluded because of radio installation. July was excluded because of two-week plant shutdown for inventory and vacation.

Average Efficiency Increased by 45.4% 10.69 Bales Per Hour After Radio. 7.35 Bales Per Hour Before Radio.

3.34 Bales Per Hour Increase



TOP—GRAPH C—Total work completion in loads. Bottom— GRAPH D—Efficiency per operating hour.



dispatcher, but this only resulted in greater confusion.

It was finally decided that radio was the proper answer to a problem of this complexity, and such a system was installed. The radio transmitter was installed at the control point and mobile units were installed in the two straddle trucks.

A comparison of the old method with the new shows the advantages of the radio system. Under the old method of dispatching, the driver received his orders in one of the following ways: 1. By going to the control station. 2. By using a telephone to call the dispatcher, which meant the driver had to dismount from the truck and walk to the nearest telephone. 3. By the dispatcher going into the field on foot and hunting the truck. This meant the dispatcher had to leave the control station and could not receive calls for further service until he had returned. 4. By messenger. if available.

Under the new system, with two-

A STRADDLE truck is a four-wheel steer, pneumatic-tired truck capable of straddling, lifting, transporting, and depositing its load at the point of destination without assistance from any other source. That is, provided, of course, that the load is composed as a unit on a bolster or pallet that is suitable for engagement by the straddle truck.

It is a comparatively fast and flexible machine, having five speeds forward and five speeds reverse, and capable of traveling up to 33 miles perhour in either direction. Its ability to engage and lift its load and start its journey in a matter of seconds and at the destination to deposit and disengage the load, also in a matter of seconds, illustrates the extreme mobility of this equipment.

way radio control, a driver receives his instructions through a loud-speaker installed in the cab of his truck. When necessary, he is able to ask the dispatcher for additional information by using his microphone which is also installed in the truck cab. By this method, the dispatcher knows the location and employment of both units at all

times, thus having the "under the thumb" control that ordinarily is lacking where mobile equipment is operating over large outdoor areas. By pressing a button, the dispatcher can now effectively control and coordinate the actions of the two machines.

Figures Tell the Story

The application of two-way radio not only provided a satisfactory solution to our problems, but also effected considerable yearly savings and greatly increased the efficiency of the material handling system.

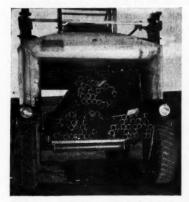
Accurate records have been compiled of the performance and efficiency of these machines covering a period of four months preceding, and a similar time following the adoption of the radio control system.

Factors involved in the performance data are: 1. Total Work Requirement in Bales—Graph A. 2. Total Work Completed in Bales as



Related to Hours of Operation— Graph B. 3. Total Work Completion in Loads—Graph C. 4. Efficiency per Operating Hour—Graph D.

It will be seen from a summary of the performance data (Table 1) that the average efficiency has been increased by 45.4 percent. Before radio installation, the average effi-



LOAD in a carrying position, showing how lifting device engages bolster.

ciency was 7.35 bales handled per operating hour; after radio installation the efficiency had increased to an average of 10.69 bales per operating hour. These figures are based on average performance.

The radio control system is of greatest value to producing departments during periods of peak demand for the movement of materials. An examination of Charts F and G, showing maximum work completion of the trucks, reveals a period of several days during which time the units did not complete all of their work. This indicates that they were operating at maximum capacity, also that there is an increase of 48.8 percent in the capacity or ability of the units to perform work during peak periods. This demonstrates not only that the new method of control is superior to the old method, but also to just what extent it is better under maximum work requirements. The greatest service is rendered at the time of greatest need.

Before radio installation, the straddle trucks handled 7.35 bales per hour (see Table 1) at an average cost per operating hour of \$3.31. This amounts to \$0.45 per bale

This Crescent___

raises profits for General Tire

The Scene: General Tire and Rubber Company, Akron, Ohio.

The Time: Any day of any week.

The Cast: A Crescent Electric PALLETIER and one operator.

The Story: The plot isn't new. It's happening in countless plants the country over. Operator and Palletier team up to raise profits for their company. And they succeed time and time again. For a Crescent Electric Palletier is packed with power for repeated stop and go operation. It lifts. It hauls. It tiers. It gets in and out of narrow areas—always with ease. The moral is...

A Crescent

can raise profits for you



Crescent

ELECTRIC INDUSTRIAL TRUCK AND TRACTOR SPECIALISTS SINCE 1917

Wedge-Lock STEEL SHELVING





Clears the way for

MATERIALS MOVEMENT

WEDGE-LOCK Steel Shelving gives you room for wide, unobstructed aisles that help traffic move fast. It allows you to pack a lot of inventory in a little space, because WEDGE-LOCK bears far greater weight than any other shelving, yet requires only a minimum of floor area.

Exclusive WEDGE-LOCK construction is strong, tight and sway-proof. Heavy loading merely increases overall rigidity. No gussets or sway braces needed. Shelves are clear, easy-toget-at... free from obstructions that might impede materials movement. Specify Berger WEDGE-LOCK Steel Shelving for a smoother, faster material flow in production areas, in receiving and shipping rooms, in assembly and inspection departments as well as in stockrooms. Write for literature and full information.

WEDGE-LOCK STEEL SHELVING AND STORAGE EQUIPMENT

BERGER MANUFACTURING
DIVISION
REPUBLIC STEEL CORPORATION
CANTON 5, OHIO

Rack Type Steel Shelving for Long Parts * Steel Bar Racks * Convertible Steel Shelving * Flexi-Bilt Bin Units
Tool Room and Shop Equipment * Stacking, Nesting and Scoop Front Boxes * Steel Lockers * Steel Office Equipment

handled. After radio installation, the trucks handled 10.69 bales per hour at a cost per bale of \$.309. This resulted in a savings of \$.141 per bale handled. From Table 1, we see that our present working schedule averages 8,909 bales per month completed (after radio installation), and hence the monthly savings from two-way radio installation is \$1,256.17. On an annual basis the accrued savings would be \$15.074.04.

A tabulation of these savings is as follows:

	DIRECT SAVINGS	
1.	Handling Cost per Bale before Radio \$.450
2.	Handling Cost per Bale after Radio	.309
3.	Savings per Bale Handled\$.141
4.	Monthly Savings 8,909 Bales @\$.141/Bale\$	
5.	Annual Basis \$1,256.17	

The cost of the radio—\$2,450 plus installation charges of \$260 and hi-output generator changes on the trucks of \$328.54—totals \$3,038.54, or 20.1 percent of the annual savings of \$15,074.04. This



QUALITY plus EXPERIENCE plus SERVICE equals

RAZORBACK BRAND PALLETS

It's the best hardwood pallet on the market! Our rigid inspection assures uniform quality in every RAZORBACK Brand PALLET—they give you long service with low maintenance cost—yet our volume production enables us to compete with ordinary pallets.

Try a car and compare our quality and workmanship with pallets you are now using. Contact us or our representatives.

ARKANSAS PALLET CORP.

P.O. Box 794-A Phone 6474 PINE BLUFF, ARKANSAS

NEW 1949-1950 DIRECTORY

The first issue of the FLOW directory of Material Handling Equipment and Accessories was received with great acclaim, and now orders are being accepted for the second, improved issue at \$5 per copy. Distribution will be in mid-year of 1949. Several sections will be expanded and new ones added. Send your order now.

was redeemed after approximately two and one-half months of normal operation.

Indirect Benefits

1. Less time lost due to mechanical difficulties because the driver can make immediate contact with control. 2. More efficient operating conditions-higher operator morale. 3. Responsibilities involving judgment can be assumed by the dispatcher instead of the driver. 4. Lower maintenance of straddle trucks because the new method enables the units to perform more work per operating hour, making less operating hours. 5. Greater portion of dispatchers' time can be utilized for other office functions, 6. It speeds up the final process of special orders for increased customer satisfaction.

STOP SMASHING fingers, limbs, lives!

NOLAN ONE MAN CAR DOOR OPENER



One man can open the most binding, balky box car door with the Nolan Car Door Opener. Get greater safety . . . speed loading and unloading schedules . . . order an ample supply to fill your needs today!

 No strained muscles. No slips or falls. No broken arms, legs or smashed fingers. No fatalities. No time wasted. No "gangs" needed. No time loss.

ONLY \$27.50 EACH literature.

The Nolan Company
110 Pennsylvania Ave., Bowerston, Ohio





Large Winery* Turns to Mercury's 38 Years Handling Experience

Simplified, faster handling . . . at lower cost. These were the results accomplished with a fleet of Mercury "Yak" fork trucks, selected after study of available designs and examination of other installations.

Success of this Mercury installation typifies the economies available through Mercury's 38 years' experience. For on-the-spot consultation, ask a Mercury Sales Engineer to call. Or write for details.



FREE: 52 page Catalog Illustrates and describes all Mercury equipment. Request your free copy on

company letterhead,

Same 4000 lb. unit load han-

dling is carried through "over-

today.

the-road" operations.

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THE MERCURY MANUFACTURING COMPANY
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TRACTORS · TRAILERS · LIFT TRUCKS

ingredients that are more durable than the Pyramids!

GREASE-PROOF

Camp's Grease-Proof Magnesium Composition



ALL PRICE QUOTATIONS

\$15.00 or less per unit Consists of:

> 50 lb. Bogs Powder S Gals. Campcrete Liquid

As hard or harder than concrete.

One Unit covers approximately 100 sq. ft., 1/2" thick. \$25.00 per Unit/or \$23.00 per Unit-5 Unit lots or more.

For bonding over wood, apply over metal lath. Concrete floors must first be chipped. This composition will not feather-edge.

Ready for traffic in 24 hours.

INDUSTRIAL FLOOR RESURFACER

Takes care of over 90% of all Industrial floor problems. Non-slip...Dust-proof...Ready for traffic in 24

This material will feather-edge. Easy to mix . . . Easy to apply

Only \$15.00 for complete Unit to cover 100 sq. ft., approximately 1/4" thick.

Orders of 5 Units or more \$13.00, or 10 Units or

more \$12.00.

F.O.B. CHICAGO COAST to COAST Write or Phone

The CAMP COMPANY, INC. TRIANGLE 4-4770-1-2



Double Half-Century Anniversary

"T WILL be a quiet celebration" is the modest statement of the Shepard Niles Crane & Hoist Corp., Montour Falls, N.Y. Not only is the company completing its 50th year in the business, but President and General Manager Sidney Buckley is likewise celebrating his 50th anniversary with Shepard Niles. The double anniversary will be observed with a foregathering of members of the Hoist Builders and Overhead Electric Traveling Crane Association at Montour Falls this month. It does not often happen that two such eventful celebrations coincide.

Shepard Niles is a combination of two old companies. The Niles Co. was located in Philadelphia and was owned originally by the Niles-Bement-Pond Co. The Shepard Electric Crane and Hoist Co. started at Montour Falls in 1903. Sidney Buckley, who started as a draftsman with an engineering con-



Sidney Buckley

cern in 1899, remained continuously in the crane department of the Niles-Bement-Pond Co. as draftsman and chief engineer through several mergers. In 1925 he became general mangers, in 1925 he became general man-ager, and later president of the Niles Crane Corp. which had been formed. In 1928, Niles Crane and Shepard Electric Crane & Hoist were merged into the present Shepard Niles Crane & Hoist Corp., with Buckley named vice president. In 1934 the Philadelphia plant was moved to Montour Falls, and in 1935 S. Buckley became president of the combined concern.

Sidney Buckley can look back on a long evolutionary period of the eleclong evolutionary period of the electric traveling crane, which has undergone radical design changes. It superseded the old square shaft type of crane, which was usually powered by steam. Later, street railway motors were adapted to cranes. Electrical comment was crude and safety deequipment was crude and safety devices were not known. The designing of runways for old buildings some decades ago was often more of an engineering feat than the making of the crane.

Thus the members of the Hoist Builders and Overhead Electric Traveling Crane Association, honoring President Buckley and Shepard Niles at Montour Falls this month, may also be said to celebrate the evolution of the electric traveling crane as a modern handling tool.



The Safe-Load Indicator
COLES "Safe-load" indicator prevents
operator from lifting any loads in excess
of rated load at any given point of
radius. A warning light directs attention immediately to an overload. Current is cut-off automatically if operation
is continued.



Coles "Safe-Load" indicator provides all around protection to operator as well as to expensive equipment. The unobstructed view from operators cab at front of superstructure furnishes complete visibility, "ONE-MAN" trigger-quick control to all four motions: Hoisting, Swinging, Derricking, Traveling. The four simple controls can be worked simultaneously. Coles Cranes' rugged "battleship" construction gives long-life service at lowest maintenance cost-combined with fool-proof operation. Ease of maneuverability, including the Cole patented reversible steering are just a few of the many advantages of the Cole Mobile Crane. "Know-How" gained from 70 years Crane manufacturing experience, Plus . . . World wide distribution has made COLES Cranes a leader. Available in several models in capacities 1½ ton to 15 ton. Write us for prices, literature or the name of your nearest dealer. COLES CRANES, Inc., 4307 S. Paulina Street, Chicago 9, Illinois.



lt's a one man job . .



With Buschman PORTABLE CONVEYORS

Turn excessive handling costs into extra profits by using easy-to-set-up, low-cost Buschman Portable Conveyors. Available in 5 ft. and 10 ft. straight and curved sections, with stands, 3-way switches and other accessories, can be taken down . . . moved and re-set in minutes flat, without tools!

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ON THE



PALLET

NEWS . VIEWS . TRENDS

THE need to make a usable product out of low-grade iron ores is creating a new ore processing industry which will require handling and processing equipment of new design and startling potentialities. This was stated by Harold Von Thaden, vice president and general manager of the Robins Engineers Division of Hewitt-Robins Inc. Because of new material handling problems in iron ore, as well as in coal production, the belt conveyor and related heavy conveying techniques will undergo their greatest technical development in history in the next 10 years. The conveyor era is just unfolding and its possibilities are unlimited. The material handling problems must be solved to find better ways to increase production at lower cost.

THE fourth National Material Handling Exposition will be held in the International Amphitheatre, Chicago, June 12-16, 1950. By holding the event in Chicago, it is felt that a new and larger audience can be reached. The show will incorporate new features which promise to increase its usefulness to sales and sales promotion of material handling equipment. Floor plans will be mailed this month.

W HAT should the man in charge know of material handling in a plant? Right at the top of the list I would put plenty of experience, varied experience, in engineering. Next to engineering ability, I would put his knowledge of equipment available. He must be up to date in this capacity, or he cannot do justice to the job. Close to the top of the list I would put operation-to some of you that will mean production. It is said you learn by doing, and our expert will do well to have had actual operating experience before he attempts to improve methods. Other considerations would be a knowledge of warehousing. traffic, safety, time-study and methods, labor relations and economy. On the personal side the man must have personality and must be aggressive without antagonizing. Management must also state what this man's place will be in the organization and how much authority will be delegated to him.-From an address by T. L. Carter, American Cyanamid Co., at the Third Annual National Material Handling Convention.

W ITH its present record high ingot capacity, the steel industry faces the task of assembling larger

quantities of raw materials than ever before. This includes nearly 250 tons of iron ore and 203 tons of coal every minute of the night and day, according to an announcement by the American Iron and Steel Institute. Large quantities of other materials, some from distant parts of the world, will be needed too. The capacity of the industry at 96,120,930 tons of raw steel a year (180 tons every minute) is now greater than ever before, and further large expansion is planned during the next two years.

M AJOR emphasis was given to material handling techniques and machines at the Food Distribution Show and concurrent annual convention of the U. S. Wholesale Grocers Association at the Municipal Auditorium, St. Louis, May 30 to June 1. As a principal effort in reducing costs of warehousing, handling and shipping, a film was produced by the association on material handling methods and was premiered at the show. The exposition was the first of its kind in the field.

IN A recent talk before the American Management Association in New York, J. J. Manuele, director of quality control for the Westinghouse Electric Corp., Pittsburgh, stated that adequate quality control and preventive inspection programs can save American industry more than three billion dollars a year. This amount, he said, is now lost in substandard products that must be scrapped before they leave the production line. In too many plants, the inspection department is often burdened with the responsibility of sorting products into two categories, acceptable and unacceptable. While this assures adequate product quality for the consumer, it does not protect the manufacturer against the loss that results from defective production. Manuele suggested a five-point program, including: (1) clearly defined standards of quality: (2) sufficient inspection coverage; (3) proper inspection methods; (4) correct inspection tools; and (5) maintenance of adequate records.

CONSTRUCTION of a new Chicago warehouse for the United States Rubber Co. was scheduled for completion by May 15. It will be a one-story building with 175,000 sq. ft. of floor space. The

(Turn to page 82)

Men In The News

THE election of H. P. Niemann as president and to the board of directors of The Hertner Electric Co. has been announced by Herman G. Place, president of General Precision Equipment Corp. The Hertner Co. is a subsidiary of the corporation. Nieman has been vice president and general manager of Hertner for the past two years.

THE following were elected directors of Albion Industries, Inc.: Walter R. Kinkle, chairman, Ralph R. Brooks, Stephen E. Janus, R. Davis and A. A. Magnotta. Company officers elected were: Ralph Brooks, president; Stephen E. Janus, vice president; R. Davis, treasurer; and A. A. Magnotta, secretary. Paul H. Sleeper has resigned as president and general manager of the company.

A CME STEEL CO. has announced the appointment of W. S. Huss as sales manager of the southern division, with headquarters in Atlanta. Assisting Huss will be J. C. Brill, New Orleans district manager, and C. A. Carrell and W. G. Polley, special representatives. Huss replaces F. H. Webb, who retired recently.

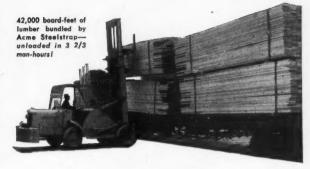
THE following were re-elected directors of the Yale & Towne Mfg. Co.; Joseph A. Horne, chairman of the board; Robert Struthers; Gabriel S. Brown; Herbert G. Wellington; Fred Dunning, executive vice president, secretary and treasurer; William H. Mitchell; S. Bayard Colgate; Calvert Carey, president; F. Carroll Taylor; Eugene W. Stetson Jr.; and Gilbert W. Chapman, vice president in charge of finance.

RAYMOND S. PERRY has been appointed general sales manager of the Federal Telephone and Radio Corp., according to an announcement by Ellery W. Stone, president. Perry was formerly president of the Eicor Corp. He will direct all commercial activities of Federal.

THE Electric Products Co. has announced the appointment of Henry J. Leisenheimer as manager of export sales. Leisenheimer formerly directed the export activities of The Cleveland Tractor Co. More recently, he served in the same capacity for The Hydraulic Press Mfg. Co.

H. SOMERS has been appointed director of sales, Rack Engineering Co., it was announced by Samuel Saul, Jr., president. Prior to his affiliation with Rack, Somers was quality control engineer and assistant sales manager, Standard Gage Co.

Shippers and Receivers SAVE with ACME STEELSTRAP



Packaging with Acme Steelstrap can save time, money, and materials for 9 out of 10 shippers—and for receivers, too! Take the case of Ekco Products Company of Chicago.

Ekco used to spend 38 to 45 man-hours unloading 25,000 board-feet of lumber. Then their supplier started bundling shipments with Acme Steelstrap.

The next car was unloaded in 4½ manhours. And the following car—with a record load of 42,000 board-feet—took only 3½ man-hours!

Whether you ship by carton or carload, you want to cut costs, protect your shipment against damage and pilferage, and build customer good will. And the way to do it is to box, bale, bundle or crate your product with Acme Steelstrap.

Mail the coupon today for free booklet of case studies. Or, by simply checking the square indicated on the coupon, you can have an Acme Shipping Specialist make a free analysis of your problems.

STRAPPING DIVISION

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Company		
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☐ Have representative call. ☐ Send booklet, "Savings in Shipping."		
ACME STEEL COMPANY, Dept. F-69 2838 Archer Avenue, Chicago 8, Illinois		



GRAB INNOVATION . . .

(Continued from page 28)

corporates a hook for attachment of chain slings.

Mechanically Speaking

The grab is designed for a capacity of four tons, and will handle loads between 24" and 48" wide, and 80" deep. The length of the loads usually does not exceed 96".

Rotation as well as opening and closing of the grab is accomplished by two 440-volt, 3-phase 60-cycle motors which are operated by the crane operator by means of remote controls mounted in the cab. The turntable, on which the grab bail is mounted, is powered by a motor through a worm and worm gear assembly, and can be stopped at any point in its arc of travel.

The grab legs are opened and closed by a second motor through



GRAB DOES many maintenance jobs. Here it is spotting conveyor section on floor tracks.

the medium of a reducer and slip clutch arrangement which actuates a set of cranks. The slip clutch is provided to protect the gearing and motor when the grab is closed on a load. The grab also incorporates a provision for manual vertical positioning of the legs for handling loads of varying widths. This mechanism consists of a sliding lock bar adjustment lever which permits simultaneous adjustment of the leg on each side of the grab.

Successful Application

The new grab has been so successful for the operations indicated

that Carrier has ordered two new ones for heavy press shop operations. While similar in design, the new models will incorporate certain features considered necessary by Carrier engineers for the heavy-duty work. These include, among others, new type closing and rotating motors equipped with disc brakes, heavier sling hook supporting assemblies, carrying leg cross-bracing and slightly increased leg depth.

Hook-up men no longer have to climb 10 to 14 ft. in the air each time a rack is lifted off an upper tier. Whereas two riggers formerly used to place slings on a rack, neither is now required if the material group leader can indicate to the crane operator what material is to be removed from a tier. Only one of the two former hook-up men is necessary for crane-following, the other man having been transferred to a production department. And the task of the remaining operator has been made an easier as well as a safer one.

SALES FIELD . . .

(Continued from page 40)

is a distributor of electric industrial trucks and motorized hand trucks manufactured by the Automatic Transportation Co.

B OND INDUSTRIAL EQUIPMENT CO., 51 Clarkson St., New York: this company has been appointed dis-

tributor for the complete line of fork lift trucks and industrial towing tractors manufactured by the Clark Equipment Co. The distributing firm is headed by Jules Michael. Distribution is to railroads, motor and



air carriers, warehouses, steamship lines and allied industries in the transportation field.

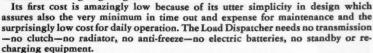
DAN G. CAYWOOD, Jr., 272 Highland Ave., Newton, Mass., has been appointed exclusive representative in part of the state of Massachusetts and all of the states of Maine and New Hampshire by the George Haiss Mfg. Co. Caywood will handle the company's conveyors and coal loaders.



A RUGGED RAPID MATERIAL HANDLING TRUCK — CAPACITY 3,000 POUNDS

At this busy southern machine shop, a Load Dispatcher tractor handles a three car tow easily in a manner that amazed the management in and around surroundings that used all the floor space allotted to storage and crowded the aisles to a high degree.

The extreme maneuverability of the Load Dispatcher is one of its many qualities that adapt it so readily to the requirements of busy factories, foundries, warehouses, etc., where floor space is valuable and at a premium. It is handy and a money maker on hundreds of jobs where the aisles are narrow and crowded and the going is tight.



The Load Dispatcher is a well-built, strong device produced in one of the best

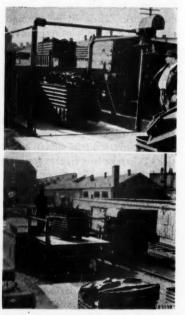




SWINGING



ON THE LEVEL—Designed for the movement of material between rail car floor heights and the ground is this leveling platform installed at the Mount Clare shop car yard of the Baltimore & Ohio R. R. The unit is said to make the use of hand lift trucks and skids a



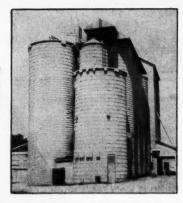
real one-man operation in loading and unloading cars in a small area. The equipment has a 6'6" x 8' platform with a capacity of 6000 lb. to freight car floor level. The lift is operated by a one-horsepower motor. It is suited for small places where operating conditions are congested, and allows practically everything to be handled to and from B. & O.'s main storehouse in skids.—Courtesy, Service Caster & Truck Corp.

FAST PIG HANDLING—Through the use of fork trucks and self-dumping rocker bins, loading of a highway truck with pigs of smelted brass now is only a matter of minutes instead of hours, as compared with the former manual loading. At the Fairfield, Alabama



plant of W. J. Bullock, Inc., bins automatically dump themselves when a trigger at the rear is tripped by the fork truck's operator. They are loaded at the casting bench by means of a slat conveyor.—Courtesy, Electric Industrial Truck Association.

FAST IN TWO SENSES



Because the Super-Concrete Staves lay up readily, Neff & Fry Storage Bins are erected fast; i.e., in a comparatively short

The staves interlock together firmly. The tiers are securely bound with heavy galvanized steel rings. The materials are enduring. So Neff & Fry Bins stand fast; i.e., ruggedly, for a long time.

Experience over a period of almost 30 years proves that Neff & Fry Super-Concrete Stave Storage Bins serve from one generation to the next with virtually no upkeep cost. Many of the leading manufacturing, processing, mining, quarrying, distributing, and transportation companies of the country will testify that this is true.

We'll gladly give you the evidence. Get it before you contract for storage bins. Write, wire, or phone us.

NEFF & FRY STORAGE BINS

FOR ALL SORTS OF BULK FLOWABLE MATERIALS

THE NEFF & FRY CO., Camden, Ohio



Los Angeles Interurban Transportation Company Largest Newsprint Southern California

L. A. Interurban handles more than 200 tons of newsprint daily...it's always been difficult and dangerous. Now using 24 Melooz Trucks they've made drastic reductions in accidents and damages...saved on handling time.

THREE COST-CUTTING ADVANTAGES FOUND ON NO OTHER TRUCK!

* Adjusts instantly to the right balance for the roll, regardless of height, diameter or weight. * Carries ALL the weight, relieves the operator of strain, prevents accidents, hernias, damage to costly paper rolls. * Streamlined, completely maneuverable, yet built to stand up under two-ton loads in constant service. No better equipment for close quarters, freight car or trailer truck handling, or warehouse, loading dock and press room needs.

Write for illustrated booklet. Address Department F5.

Some distributor territories still open. Details on request. MELCUL Manufacturing Company inc. 4730 AVALON BOULEVARD, LOS AMBÉLES 11, CALIFORNIA

MATERIALS HANDLING MADE FASY

RONBOUND SKIDS



...Still the low cost time proven method for efficient and economical handling of materials.



Here's how one manufacturer is reducing handling costs on production line loading of semi-live skids with special Ironbound tiering trays.

Skids or semi-live skids can be made for use with box tops or trays to provide tiering, space-saving mobility. You, too, can stack, tier or handle special materials with various types of superstructures.

We can show you how a skid system will work in your plant to save you money. Write for illustrated literature describing many Ironbound standard material-handling units.



THE IRONBOUND UNIT FOR SIMPLIFIED HANDLING OF PAPER ROLLS, DRUMS, BARRELS, REELS, KEGS, ETC.

The Ironbound RolTruk will "pick-up and go" with cylindrical items weighing up to 2000 pounds. Available in models to meet most every roll handling requirement. Ask for special fully illustrated 6 page bulletin 10-RT.



Typical removable tronbou Box Top on standard Sen live Skid.

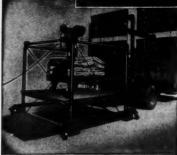
BOX & LUMBER COMPANY Materials Handling Division 30 HOFFMAN PLACE . HILLSIDE, N. J.



SKIDS . SEMI-LIVE SKIDS DOLLIES . FLOOR TRUCKS







Save your workers a lot of backaches-save time, trouble and money, by handling heavy loads from level to level with the new Service LEVELER. Dependably powered by a ruugged, fully-enclosed, 1 H.P. motor, it lifts as much as 6,000 pounds as high as 5 feet . . . in less than a minute. Loads, machine and operator are fully protected under all operating conditions. Outstanding safety features include: easy manual control of starting and stopping at any height; automatic top and bottom limit stops; positive motor cut-off stops; centrifugal safety governor; slack cable shut-off; post guard rings. Here's a unit that can be installed anywhere in just a few hours at amazing low cost . . . requires no sub-surface installation . . . obsoletes slow, dangerous manual handling . . . pays for itself in a very short time. Write for detailed specifications today.



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MAKES SAFETY AND PARKING LINES AT WALKING SPEED!

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· Makes curved, straight, continuous or skip lines . . . 2, 3, or 4" wide.

● Holds 1½ gals. paint, lacquer, whitewash. No motor, compressor or attach-

· One man, one hand operation · Portable, efficient, speedy.

· Operates on gravity feed. · Easy to clean & store.

Materials & Workmanship

Fully Guaranteed.

Dealerships Available

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Dealers Wanted!

LINE OF COLLAPSIBLE.

Returnable Palletized Shipping Containers



When folded, PLY-CO containers oc-cupy 1/4th the space of ordinary types.

Smooth walled.

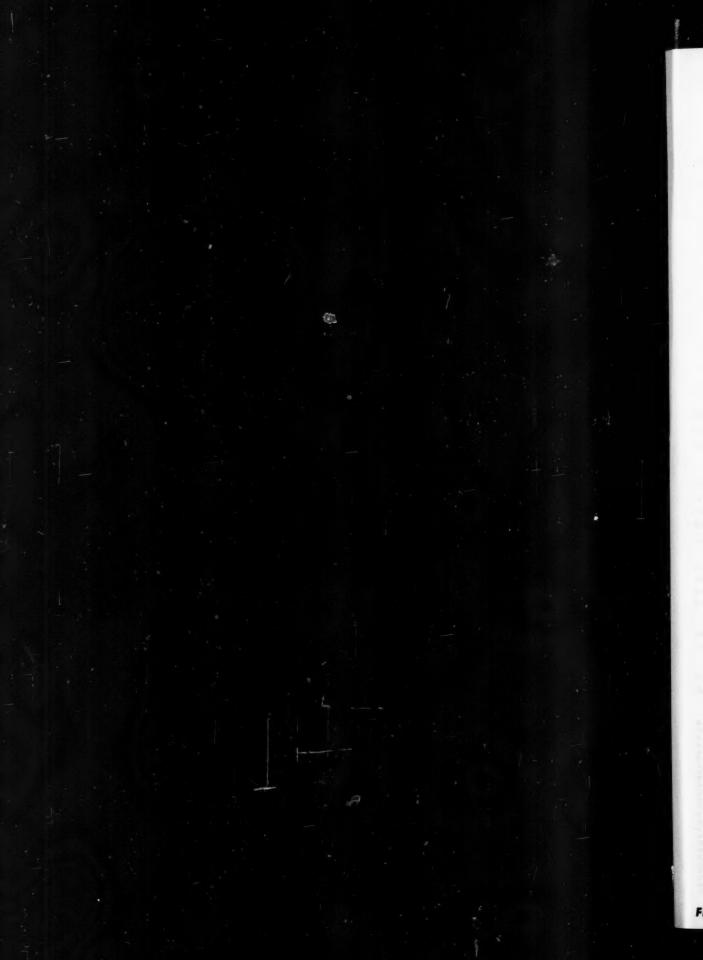
Each size specifi-cally designed for individual materials handling problem.

Available

Removable front

Let us give you full details on dealer franchise and territories still open. Popular, fast selling PLYCO shipping containers offer profitable oppor-tunities to alert sales agents. Write today.

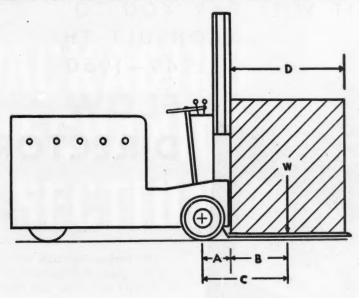






A regular feature designed to help the engineer and others responsible for material handling. The FLOW Engineering Data Page will cover a different category of equipment each month.

PROCEDURE FOR COMPARATIVE RATING FOR FORK LIFT TRUCKS



Some manufacturers specify a number of pounds capacity with a particular length of load while others specify a number of pounds capacity at a given number of inches from the heel of the fork. Some give an inch-pound rating based on the distance of the load center from the heel of the fork, while others base their inch-pound rating on the distance from the center of the load to the center of the front axis.

Here is one method of comparative rating:

With reference to the accompanying sketch, the symbols are interpreted as follows:

- A = Distance from center of front axle to ñeel of fork measured in inches.
- $B = \frac{D}{2}$ Distance from heel of fork to center of load measured in inches.
- C = A + B = Distance from center of front axle to center of load measured in inches.

 $D=2\times B$ Length of Load

W = Weight of load measured in pounds.

In order to calculate a load with a length other than that specified by the manufacturer, or to compare one truck with another of a different rating, it is necessary to obtain the "inch-Pound Rating". The inch-Pound Rating is W, the rated load; multiplied by C, the distance from the center of the front axle to the center of the load, i.e.

The inch-pound rating becomes a constant for that particular truck. Then, in order to figure (1) the maximum load length for any given load; or, (2) the maximum load for any given load length, the formula can be reversed to give this information, i.e.

(1)
$$C = \frac{Inch-Pound\ Rating}{W}$$
 (2) $W = \frac{Inch-Pound\ Rating}{C}$

Example: A truck has a rating of 4000 @ 30"—which means a 4000 fload which has its center 30" from the heel of the fork. The specifications show the distance from the center of the axle to the heel of the fork to be 15". By applying the formulas, the inch-pound rating may be arrived at:

$$C = A + B = 15 + 30 = 45"$$

Inch-Pound Rating = $\mathbf{W} \times \mathbf{C} = 4000 \times 45 = 180,000$ inch-pounds

The rating of 180,000 inch-pounds then becomes a constant for the truck in question. Then, to learn how long a pallet or skid which will have a gross weight of 2500% can be made, by applying the

$$C = \frac{Inch-Pound\ Rating}{W} = \frac{180,000}{2500} = 72"$$

$$D=2\times B=2\times 57''$$

= 114" allowable load length

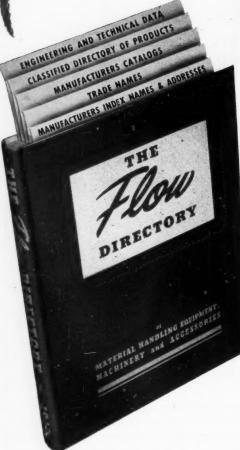
Or, as another example, it is desired to know the maximum safe load for a standard 84" rack, by applying the formulas:

$$B = \frac{D}{2} = \frac{84}{2} = 42''$$
 $C = A + B = 15'' + 42'' = 57''$

$$W = \frac{Inch-Pound\ Rating}{C} = \frac{180,000}{57"} = 3158\frac{1}{2}\ gross\ weight\ allowed.$$

EVERY WEEK IN THE YEAR IT WILL PAY YOU TO CONSULT THE 1949-1950

FLOW DIRECTORY



Typical Comment from Users of the 1948 FLOW DIRECTORY

"It has been very helpful it appears to be very well organized."

-Cutler-Hammer, Inc.

"The FLOW DIRECTORY has proved a very useful addition to our library."

-The Coca Cola Co.

"You have done an excellent job of compiling a composite catalog of the various types of material handling equipment and machinery."

-The Glidden Co.



The forthcoming FLOW DIRECTORY will contain 20% more pages than the first edition. It will have more product information and illustrations, increased engineering data and wider usefulness.

An entirely new section has been added—"Who Sells Material Handling Equipment." This section lists manufacturers, agencies and distribution outlets. Local agents are geographically arranged to afford the reader quick identification of a product and where it is obtainable.

- The first FLOW DIRECTORY was a pioneering effort widely acclaimed by the industry. Never before had this vast amount of material been compiled between two covers. The new edition will be even more complete and more informative.
- The next DIRECTORY will be available soon. Now is the time to reserve your copy. You cannot afford to be without this important reference.
- RETURN COUPON BELOW FOR YOUR COPY of this 484 PAGE FACT FILLED DIRECTORY—\$5.00 post paid.

MANUFACTURERS DIRECTORY CO. 1240 Ontario St., Cleveland 13, Ohio	estra de la sila la la la la
Send mecopies of the 194	9-1950 FLOW DIRECTORY as soon as
it is off the press. Price \$5.00 (postage which is enclosed:	e paid). Please indicate in box below
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COMPANY PU	
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MAIL THIS ORDER BLANK TODAY

PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filing and hundling the boxes, cartons, bags, bettics, cases, etc., used in commerce and industry.

CONTENTS

- HIGH-VOLUME GLASS PACKING-WITH CARE. AT
 - Libbey-Owons-Ford, traveling bridge cranes transport large sheets of glass through final processing—and pack them too. Equally informative is handling of smaller sheets on A-bucks in connection with low-lift platform trucks.
- PRE-PACKAGING TOMATOES IN TRAYS—when an automatic wrapping machine was installed, a five-fold increase over manual packing was noted. Approximately 30,000 lb. of tomatoes are processed, packaged and shipped daily during a concentrated

High-Volume Glass Packing -- with care!

S HEETS of plate glass measuring up to 126" x 235", and larger, are handled swiftly and safely at the Libbey-Owens-Ford Glass Co., Toledo, through final inspection, storage, packing and shipping. Proof of the effectiveness of the handling methods adopted is offered by the fact that millions of sq. ft. of glass flow from the plant each year with a negligible amount of breakage.

Factors Determining Equipment

One of the factors which had an important bearing on the final operations was the continuous production of the glass-making furnaces. They operate on a round-the-clock schedule, feeding the product continuously through processing to storage, packing and shipping. Uninterrupted flow in the latter departments was necessary to prevent the piling up of glass at processing stations.

Equally important was the method of packing the fragile product and the design of the container. The packing had to protect the individual sheets from each other, while the case had to offset the shaking and jarring which the glass was subjected to during its travel to the customer. Protection against the elements was another consideration.

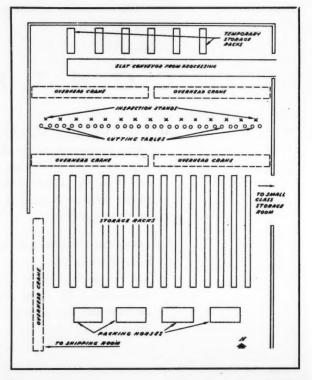
The handling in the final operations was delegated to overhead cranes and powered platform trucks. The latter transport sheets under 80" in width to and from the "small glass" storage room. The Problems of plate glass handling and packing have been successfully solved by this well-known manufacturer, with these results: 1. Safety to personnel and product in intra-plant handling. 2. Fast inter-departmental moves. 3. Minimum breakage. 4. Positive protection during packing and transit.

cranes move all stock through final inspection and cutting, and glass over 80" wide into storage, then to packing. Their other duties include packing the larger sheets (called "lights" after they leave processing), and transporting and loading

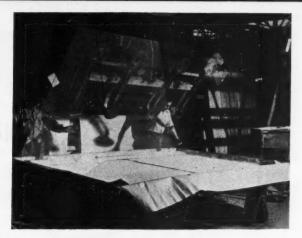
the cased product into the outgoing carriers.

Special A-shaped permanent and skid-mounted racks were designed. The skid-mounted racks (A-bucks) facilitate transportation by the power trucks, while the permanent

LAYOUT SKETCH shows arrangement of the processing, storage and packing stations.







1.4

- 1. 5000-LB. CAPACITY platform truck with glass stacked on A-buck. Platform is 12-ft. long.
- 2. A LIGHT OF PLATE GLASS is being lowered into a shipping case by crane and vacuum frame.
- 3. OVERHEAD CRANE with chain slings transports finished case to shipping area. Note scale.
- 4. CASES ARE BRACED in outgoing gondola cars. They are then covered with waterproof paper.

•





racks prevented the glass from tipping and permitted easier spotting and removal of the product by the cranes.

Four Double-Bridge Cranes

Final inspection, storage and packing take place in the wareroom which is approximately 250' x 275'. The accompanying layout sketch shows the location of all stations in this room. The 135" x 90' slat conveyor at the north end brings the glass from processing. Behind the

conveyor are located temporary storage racks. Directly in front of the conveyor are the inspection stands and the cutting tables. Two tables are located next to each stand so that glass may be cut on one table, while another sheet is being placed on the second one.

The 116-ft.-long racks which run approximately two-thirds the length of the room are used for storing the larger sheets. A separate room is for the smaller sheets of glass. At the extreme south end are the four packing stations.

The wareroom is serviced by two sets of two five-ton double-bridge cranes. The first two pick the incoming glass off the conveyor and deposit it in the temporary storage racks or on the inspection stands. The second set transports the product to the cutting stations, wareroom storage tanks, order assembly and packing.

All cranes are equipped with vacuum frames (a series of eight suction cups mounted within a rectangular frame). The vacuum, controlled from the cab, may be



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... are a CINCH" for ROSS Lift Trucks

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Profit from the experience of others... make the ROSS Lift Truck a vital part of your material-handling system. There is a wide range of dependable gasoline-powered models to fit your plant's specific needs. Three types, nine models... capacities from 5,000 to 18,000 pounds. Consult ROSS... it will pay dividends.



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Permits lift truck to efficiently handle coal, sand, snow and other loose materials. Controlled from driver's position. Easily attached and detached. Fits all models . . . Other attachments include ram, snowplow, sideshifter, slope-piler, etc.



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Five types, capacities 10,000 to 30,000 pounds . . . cost-cutting team-mates of ROSS Big-Load Lift Trucks.



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280 Miller Street, Benton Harbor, Michigan, U.S.A. Direct Factory Branches and Distributors Throughout the World

PACKAGING MECHANICS SECTION

varied depending on the thickness of the sheet. Traveling cabs permit the crane operator to spot the material with precision. This is important both for protection of the personnel and the product.

Glass under 80" in width is taken from the cutting tables and placed by hand on the A-bucks. The trucks which move these bucks were designed with 12-ft.-long platforms to accommodate the large work carriers. The vast range of sizes which are cut and stocked by the company requires extensive storage facilities. The storage room for smaller size sheets itself holds more than 1½ million sq. ft. of glass.

Packing by Crane

For packing, sheets are picked off the racks by the crane and delivered to the packing horses. Smaller sizes are transported to these stations on A-bucks.

Boxes for the glass are constructed in the adjoining box-making room. (See an earlier report on the company's box nailing operations in the November, 1948 issue of FLOW.) The frames and bottoms are assembled (the tops are separate) and brought to the packing stations where they are placed on horses.

The size of any given case is determined by the size of the largest sheet in the customer's order. A few inches are added on all sides to allow for the addition of protective packing between the glass and the case.

Different size lights of glass are pyramided so that the smaller sheets are on the outside and the larger ones in the middle (usually a customer's order will specify many sizes of glass). This arrangement places a minimum amount of stress on the smaller ones and reduces internal friction.

A bed of hay is placed in the bottom of each case. Next, a sheet of

Kimpak" Float Packaging



Cuts shipping costs – reduces damage in transit!

KIMPAK creped wadding gives your product better protection, yet saves you money, too! It's strong—to guard the most delicate articles; flexible—to adapt to any product; soft, clean and smooth—to provide the surest protection for finished surfaces! Yes, damage enroute is remarkably reduced with such safe, dependable protection!

KIMPAK reduces handling costs, because it's so easy to apply and pleasant to handle. And nothing else can equal the eye-

appealing neatness of a KIMPAK wrapped product! Investigate now the many advantages of this newer, better packaging material. There's a specification to meet every requirement of the four basic methods of Interior Packaging... Surface Protection, Flotation Packaging, Blocking and Bracing, and Absorbent Packaging.

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 Sheet of Kraft-backed KIM-PAK is laid over top of cabinet and down sides.



Corrugated container is pulled down over KIMPAKprotected cabinet finish.



 Assembly is up-ended, and container closed tightly at bottom over wood base frame protecting legs of cabinet.



Completed shipping package now provides full surface protection for the cabinet from container wall contact.

All photographs courtesy of Zenith Radio Corporation, Chicago, Ill.

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FLOW • JUNE, 1949



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Easy to grip, with short handle travel, Tacker remains in perfect balance thruout each gripping of handle. Saves effort. Conserves time. Lessens fatigue.

Made in thirty-six different models, Hansen Tackers and Staplers offer a wide selection from which to choose. Staples for these units are made in eighty lengths and widths. A model for every tacking and fastening purpose.

HANSEN MEG CO

PACKAGING MECHANICS SECTION

water-repellent paper is laid on top of the hay. The paper consists of a double sheet of laminated kraft stock which is reenforced with jute strings. A sheet of newsprint is then added to prevent staining by rain.

While the smaller sheets are hand-placed in the cases, all larger ones are packed by the crane. The vacuum frame removes a light from the storage rack and deposits it in the case, as shown in one of the photos. The glass is lowered in a vertical position until one end rests inside the box, with one side against a felt-covered block. The light is then lowered into place, guided by the packers. Newsprint is placed between each sheet of glass to prevent scratching. When all glass is in place, another layer of kraft paper is inserted and more hay laid on top and packed around all sides. The top is then nailed to complete the packing. The hay gives the effect of a floating load, which affords protection against bumping and shaking during transit.

Crane-Suspended Scale, Chain Slings

The majority of the orders are shipped in open-top rail cars and highway trucks. (A very small amount is shipped via closed-top vehicles.) The outgoing boxes are picked up from the horses and transported to the carriers by a 7½-ton traveling bridge crane. All cases are handled with chain slings. The sling consists of two endless chains, which are passed around the top to grip the cross-pieces. A tie-chain draws the two legs together and provides tension to hold the case securely.

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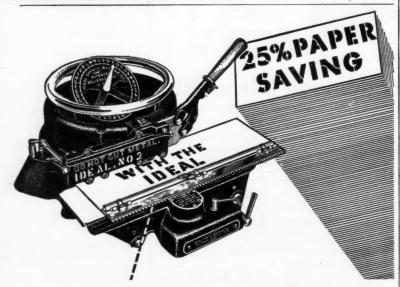
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Suspended from the hoist hook of the crane is a 6000-lb. balance-type scale. The loads are thus weighed as they are lifted, which makes it unnecessary to raise and lower the cases for weighing. The crane transfers the load about 100 ft. from packing to the car or truck. A rail spur extends inside the plant, and highway trucks come and go through large overhead type doors at one end of the shipping room. The crane's 80-ft. span covers all carriers in any part of the room.

The packing arrangement in the outgoing carriers is similar to the way in which the containers are packed—pryamid fashion, with smaller cases on the outside. Loads range from 30,000 lb. to 100,000 lb. After bracing, large sheets of water-repellent laminated paper (the same as used inside the boxes) are placed over all loads and tacked in place as further protection against water damage.



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Better, Bigger Directory

New, improved features will be incorporated in the 1949-1950 FLOW Directory. More definitions and sketches; expanded sections; new sections; revisions for easier and more complete reference. Send your order now (\$5 per copy). For midyear distribution.

Pre-Packaging Tomatoes in Trays

This report describes the methods employed for pre-packaging tomatoes at Cavalier Brands, Inc. The company processes, packages, and ships approximately 30,000 lb. daily during a five-month season. A five-fold increase over manual packing is reported.

THE pre-packaging of tomatoes, unlike spinach or kale, poses special problems. Tomatoes are usually received in all stages of the ripening process and in many sizes. Therefore, methods had to be devised to process and package those ready for the stores immediately, with those not yet ripe to be shunted into ripening rooms. Since large tomatoes are packed in baskets, they must be cared for separately. As high as 61,000 tomatoes are now processed, packaged and shipped in a six-hour period with the methods described here.

Belt Conveyors Instead of Elevators

The boxed tomatoes arrive in railroad cars. Boxes are referred to

as lugs and contain 38 lb. each. Because the tomato packaging department is on the second floor, and no elevators are available, the lugs are sent to the department on a 14-in.-wide belt conveyor. This conveyor, 47 ft. long, elevates the lugs approximately 35 ft. to the upper level, where they are transferred to a gravity wheel conveyor and sent to the start of the sorting and packaging line.

This line consists of two parallel rubber belt conveyors, 33 ft. long, with a large suction pipe located above the head end. Along one side of the conveyors is a working table on which the unripened fruit is sorted out. On the opposite side is a series of 11 shallow bins. Behind the bins is a third belt con-

veyor. The accompanying layout shows this arrangement in detail. At the feed end of conveyor No. 3 is a tray forming machine which discharges the trays onto the belt (trays are small paperboard containers having no tops. At the other end of this conveyor is an automatic wrapping machine. The packing line for baskets of tomatoes is at the west side of the room.

Belt Conveyors Through Sorting

Tomatoes are dumped from the lugs onto Conveyors No. 1 and 2. As they move along, operators loosen the individual paper wrappers, which are drawn away by the suction pipe to a scrap paper room. The ripe fruit is immediately

BELT CONVEYORS for sorting (A). (B) Bins. (C) Packaging conveyor. (D) Tray forming machine.



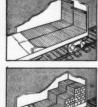
WRAPPING MACHINE for 14-oz. trays. Operator at left locks cartons and places them on skid.



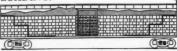
FLOW • JUNE, 1949



Shippers of cartons using this modern carloading method are FOR it! Once you have tried it, you'll want it, too! It prevents cases from falling into those "voids" or "wells", at either end of the car, caused by jolts a freight car gets during switching or other normal handling. At little cost per car, and only a w minutes' time, shippers can save real money with the FIBREEN METH-OD of UNITIZED LOADING.







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placed into the bins adjacent to the conveyors.

Unripe tomatoes are sorted according to the degree of ripeness and put in ripening rooms. To cut handling to a minimum, the largest number which can be classified into one group is allowed to travel the full length of the conveyor, which discharges into lugs. The rest of the unripe tomatoes are also sorted by operators according to size, and placed in lugs for transfer to the ripening rooms. The large size is removed and trucked to the basket packing line, or in some cases to the ripening rooms. The practice of

adjusted to wrap from 40 to 110 trays per minute. The speed of the tray forming machine is adjusted so that its output balances that of the wrapping machine. Speeds are varied depending on the number of tomatoes to be packaged.

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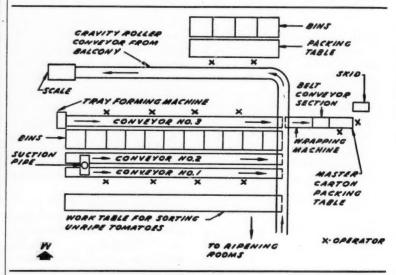
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The trays feed into the machine on a platform where they are raised and cellophane placed around them. The wrapper is cut, the ends folded, and the ends and bottoms heat sealed.

The completed trays continue from the machine on a two-ft, section of belt conveyor from which they are slid into a master carton



LAYOUT ILLUSTRATES parallel rows of conveyors. At rear, packing line for baskets of tomatoes.

removing those which make up the smallest quantities in any given shipment, rather than one specific type, eliminates much handling.

Standing along the west side of conveyor Number 3 are girls who remove the tomatoes from the bins and place them into the trays, which arrive on the same belt from the tray forming machine. The filled container continues down the conveyor to the wrapping machine. Three, four or five tomatoes, depending on their size, are placed in a tray which averages 10 ins. in length.

Wraps Up to 110 Trays Per Minute

The filled trays are fed into the overwrap machine, which can be

by an operator. The cartons hold 10, 14-oz. trays. The cartons are closed (no sealing is necessary because end-tuck cartons are used) and placed on a skid, then trucked to the belt conveyor on which the tomatoes originally arrived. They are unloaded from the conveyor on the first floor and sent to shipping.

Second Line for Baskets

It was previously stated that a second packing line is located at the west side of the room for the larger size tomatoes, which are sold in fibreboard baskets. The baskets are assembled on a balcony and sent via chute and roller conveyor to a point above the packing line. A bin arrangement similar to the

one previously described is employed here. The large tomatoes arrive from the ripening rooms or from the sorting tables and are placed in one of four large bins. Operators pack the baskets by hand and place them on a gravity roller conveyor which feeds to the weighing table. Thirty tomatoes are placed in each basket which holds eight lb. At the weighing table an operator checks each container, substituting tomatoes to arrive at the exact weight. A fibreboard cover is then inserted and the baskets sent downstairs via the conveyor.

Despite the problem of classifying many types of tomatoes, Cavalier Brands, Inc. has worked out a successful method of packaging and at the same time has cut handling to a minimum. It is possible to pack 1300 master cartons (13,000 trays) and 300 baskets in approximately six hours when enough tomatoes are on hand. Seventeen girls are able to handle this output since the automatic machinery and the present layout have been adopted. A company official states that output has increased five times over the old manual method.

(An article last month described the company's pre-packaging of spinach.—Ed.)

TAPE FOR HEAVY-DUTY PACK-ING—This "Scotch" brand filament tape is designed for heavy-duty packing of such items as metal pipes, rods, sheets and coils. It is wrapped once

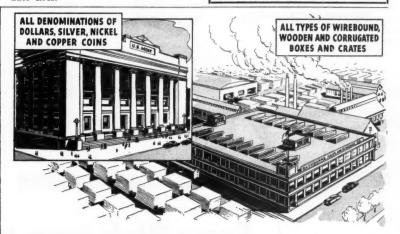


around the load, then back on itself. It is also expected to be used in some pal-

letizing operations and for shipping stoves, metal cabinets, window frames, raw lumber, wall board, plastic sheets and plate glass. The tape is made with an acetate film backing and is waterproof. According to the Minnesota Mining and Mfg. Co., the manufacturer, packages banded with it slide freely. It has a tensile strength of 180 lb. per in. of width, and a tear resistance greater than the 1600 gram centimeters that can be measured on the ASTM-approved Elmendorf Tear Tester. The filaments-more than 5000 per in. of tape width-are continuous elements of high strength rayon fibre similar to the type being used to impart extra strength and shock resistance to auto tires.

NEW 1949 DIRECTORY

The 1949-1950 FLOW Directory of Material Handling Equipment, Machinery and Accessories will feature a number of improvements over the first issue. Included will be more pages, an expanded engineering data section, improved product data classification, and a new geographical and alphabetical "Who Sells It" section. An indispensable guide for material handling engineers, executives and purchasing agents. Orders at \$5 per copy are being accepted now for midyear 1949 distribution.



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ATERIAL HANDLING UNITS THAT CUT DOWN PRODUCTION COSTS



Fig. 460: The Trojan Tractor (Monorail Type) Motor Driven Pusher and Puller for speeding-up travel of hoist and other hand traveled units. Bulletin 810

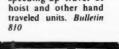


Fig. 71: Hand Traveled, Single Beam Crane. Bulletin 695



Fig. 470: The Trojan Tractor (Top Mounted Track Type) for power traveling existing hand cranes. Bulletin 810



Fig. 372: Electric Winch; capacities up to 6000 lbs. on a single line. Bulletin 668



Fig. 401: The Titan Hoist 250 lbs. to 2000 lbs. The little hoist with Big Hoist design and construction. Bulletin 801 A





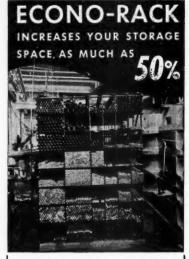
Fig. 426: Motor Traveled, Single Beam Crane. Bulletin 695

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For storage of bar steel, plates, palletized material, etc. ECONO-RACK has a wide range of uses. Saves space, provides easy access to stock, simplifies inventory. In-

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Not only handles them but handles them at a big saving in cost.

Pig's ears, oysters, battery plates, coal, cement, sand, — in fact all sizes and kinds of granular materials. There are mighty few things the CARSCOOP hasn't been called upon to unload and carry.

The CARSCOOP's amazingly efficient scooping-action. — its unparalleled agility in working in cramped quarters, its extremely short turning radius (6 ft. 6 in.) and its large capacity scoop (10 cu. ft.) unquestionably makes it the world's lastest car unloader.

The Butler CARSCOOP may solve your materials handling problem,—just as it has for hundreds of the country's largest industrial plants. It's certainly worth your investigation. There's complete information awaiting your request. Write today.

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For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13, or use postcard bound into this issue.

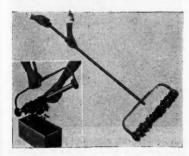
PORTABLE HOIST

NP1—The Lincoln Precision Machining Co. has released the first models of the Lug-All, a portable hoist. The unit weighs $8\frac{1}{2}$ lb. and is capable of lifting $1\frac{1}{2}$ tons. The model is designed with a minimum of parts, which makes repair jobs easy. The handle may be reversed to facilitate operations in

tight places. The unit has a 133-strand aircraft cable, which is said to reel out easily without snagging. The limit for the cable is 15 ft., at which length the hoist capacity is 1500 lb. When doubled (length $7\frac{1}{2}$ ft.), its capacity is increased to $1\frac{1}{2}$ tons, according to the manufacturer.

ROTARY TANK MAGNET

NP2—An improved model of the Multilift Rotary Tank Magnetool is announced by the Multifinish Mfg. Co. It



is designed to pick up steel parts in tanks. Features make it possible for

the tool to attach to the tank, and no contact with parts is necessary. According to the release, the units are built to resist all ordinary acid and alkali solutions such as those used in plating, cleaning, etc., and are completely self-draining. The rotating magnetic tool is simply lowered into the tank and propelled in carpet sweeper fashion on its wheels, or moved up and down. The tube loads on its entire 360 degrees of surface. Unloading is accomplished by pushing the wiper ring from one end of the tube to the opposite end, where a nonmagetic area allows instant load release.

SKID AND BOX TOP TIERING UNITS

NP3—The Ironbound Box & Lumber Co. has announced new types of skid and box top tiering units, which come in "A" and "B" models. The "A" type



box is built with extended and flanged corners, both top and bottom, so that it will fit over the skid corners and will also hold "B" type boxes. The latter are used to increase box capacity to any depth required, and stack on top of each other. Box type containers have only four sides, the bottom being formed by the skid. Skid legs fit inside the extended upper flange of the boxes so that stacking one made-up unit upon another is only limited by the lift truck fork extension. Units can be handled by either platform lift or fork trucks.

Additional information may be obtained by using the postcard bound into this issue.

TRAVELOADER

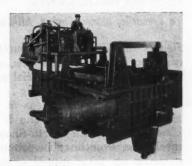
NP4—The Traveloader, a combined fork type loader, carrier and motor truck, is available from the Lull Mfg. Co. It self-loads from the side onto the carrying deck and then transports the load inside the plant or over the



road. The carrier operates at speeds up to 30 miles per hour. Models are available with 3000-lb., 10,000 lb., and 30,000-lb. lifting capacities. Featuring four-wheel drive, full hydraulic control and full power hydraulic loader operation, the Traveloader is designed to handle heavy, long materials.

SCRAP METAL BALING PRESSES

NP5—Dempster Brothers, Inc., have announced the latest addition to its line of high speed scrap metal baling presses. Known as the Dempster-Balester,



Type D, Model 600 S-1, the press turns out high density bales of 600 to 750 lb. each, at the approximate rate of $7\frac{1}{2}$ tons per hour. The machine requires floor space 24 ft. long, 22 ft. wide. It is 11 ft. high and weighs 116,000 lb. Operating power is provided by two 75

H.P. electric motors. Charging box delivers a finished bale 16" x 18" x 35". Press is equipped with a box type ejector. A Skip Pan Loader with 4 1/3 cu. yd. capacity permits preparation of a charge while the press is baling.

PORTABLE CONVEYOR WITH HYDRAULIC HOIST

NP6—The Universal Engineering Corp. is manufacturing a portable conveyor with hydraulic hoist. The hoist lifts the conveyor 21 degrees in 10 minutes, and the conveyor may be lowered to traveling position in one minute. This unit is available in lengths of any multiple of four ft., with a minimum

of 32' and a maximum of 52' to 60' depending on the type of frame. It is



available in 18", 24" and 30" widths.

The conveyor features anti-friction bearings throughout; bearings in triple roll and return rollers; extra-heavy head and tail shafts and bearings; 24" belt takeup on tail pulley; self-cleaning tail pulley and belt scraper. The conveyors may be driven from gas, diesel or electric power.

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RAM TRUCK

NP7—A new 20-ton capacity ramtype truck, designed for handling stripcoils in steel mills, has been introduced



by the Yale & Towne Mfg. Co. The truck is said to improve coil-handling during processing, storage, and shipping operations. The model features an elevating height of 101/2 feet, a lifting capacity of 20 tons, a maximum speed of five miles per hour, a 360° rotating drive unit permitting operation in narrow aisles, and unobstructed driver visibility. Rated truck capacity is 25,000 lbs. with a load 92 inches long, 40,000 lbs. with a load 42 inches long. Each of the forward pairs of wheels is articulated to accommodate the irregularities of mill flooring. Typical applications are moving coils from strip mills and tiering them in storage, charging annealing furnaces, and loading carriers.

HYDRAULIC TAILGATE

NP8—Cemco Industries, Inc., is manufacturing a hydraulic tailgate for use on platform or van type bodies. The unit is hydraulically operated and makes a raising or lowering platform



out of a truck's tailgate. Power is supplied from a power take-off which is operated by the truck motor. Lifting capacity is up to 2000 lb. Pump valve

Lifting and loading materials, parts, etc. . . . clean-up and maintenance work . . . drawbar work such as moving machinery, cars.

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Tractor weight 11,250 lb., 40.26 drawbar hp., 50.25 belt hp.





Maintaining grounds and parking areas...bulldozer work...excavation...snow removal...load and unload bulk...stockpiling...spotting cars.

ATTACHMENTS

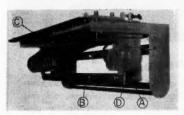
1 Cu. Yd. Standard Bucket ¼ Cu. Yd. Narrow Bucket 2 Cu. Yd. Light Materials Bucket 1 Cu. Yd. Rock Bucket 1 Cu.Yd. Magnesium Bucket Doug Bucket Teeth For All Buckets

Teeth For All Buckets Heavy Duty Buildozer Blades V-Type Snowplow

Allis-Chalmers builds a wide line of wheel and crawler tractors for material handling of all kinds — loading, carrying, pulling. See your Allis-Chalmers tractor dealer or write for literature. may be adjusted to lift weight best suited to particular chassis frame. A safety lock is atached to the fiate to prevent its dropping from a raised position to the ground, and the gate may be held at any height. A locking device holds the gate in a closed position while the truck is in transit. Platform sizes range from 27" x 84" to 36" x 90".

AUTOMATIC BELT GUIDER

NP9—Light canvas or paper conveyor belts are held on center, or moved back to center if they run out of line, by application of the recently improved automatic belt guider manufactured by the



J. W. Greer Co. Installation is on the loading end of the conveyor on the return run slack side of the belt. The belt is threaded over roll (as shown in the photo) and under roll "B" to move upward to knife edge "C" on the top plate of the assembly. The unit is available in 13 sizes for belts from 24" to 48" wide. The motor is controlled by a double-throw switch actuated by feeler arm "D" which anticipates the belt "wanderlust". Side movement of the belt in either direction will actuate the switches and cause the motor to move roll "B" out of line in correcting direction.

ROTATING CRANE CARRIER

NP10—A new revolving crane carrier has been developed by the Cleveland Tramrail Division of the Cleveland Crane & Engineering Co. The equip-



ment consists of a crane, a trolley and a rotating carrier that operates on a circular track built into the trolley. All motions of the equipment are conrrolled by the crare operator. The hook can be raised, lowered, tilted upwards or downwards by separate or simultaneous operation of the hoists. Speeds of the unit are: bridge 400 FPM, trolley 200 FPM, hoist 50 to 80 FPM, and rotation 75 FPM. Bridge and trolley control are variable five-speed drum type with dynamic lowering. Rotating control is automatic accelerating.

CONVEYOR TRAFFIC COP

NP11—Designed for automatic merging and directing of units on a conveyor system is a unit developed by The Alvey-Ferguson Co. Known as the MergA-Flow System, it operates as follows. When one of the electrically interlocked gates of the unit is held open by the flow of cartons or cases, the other

gate blocks the flow of the cartons on the second line. A "break" in the flow of cartons on Line 1 automatically closes the first gate and opens the gate on the second line, allowing the cartons on Line 2 to flow until a "break" in the flow on the second line occurs. The cycle is then repeated. The system is said to eliminate slow-downs, jamming, traffic congestion and stoppages from multiple production lines.

TENSION TESTING SCALE

NP12—A new model Push Or Pull scale is being manufactured by the Pelouze Mfg. Co. Designed for tension testing, the scale can be inserted into the smallest of openings, without removing the



Stack pallets three-high . . . remove any pallet without disturbing the other . . . store products quicker, easier and more economically with MHS prefabricated racks. They make pallets and products more accessible, give more storage space, yet more room for maneuvering trucks because aisles can be made wider. Racks are light weight and portable—permit quick layout changes as inventories change.

Full details in free catalog. Write for your copy.

COMPLETE ENGINEERING SERVICE FOR ALL HANDLING PROBLEMS

Staffed and equipped to design and construct all types of materials-handling equipment to help you increase manufacturing efficiency, lower costs and provide better organization and control of materials flow. Let our engineers discuss your problems.



MECHANICAL HANDLING SYSTEMS, INC.

Manufacturing Engineers
4606 NANCY AVENUE • DETROIT 12, MICHIGAN



If it Saves



STANDARD 55 GALLON-DRUMS AND BARRELS

plete drainage; saves time; prevents personal injuries . . . Rigidly constructed of angle iron; two wheels and two swivel casters as illustrated.

Write for Bulletin W-69

Safety Equipment for all Industries. INDUSTRIAL PRODUCTS COMPANY 2823 N. FOURTH STREET . PHILADELPHIA 33, PA.



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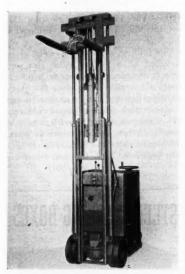
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installed units or parts for instant, accurate, measuring of tension in lb. or ounces. The unit's rods are six in. long, threaded or detachable. Other lengths are available. The scales are applicable for measuring small torques; torques of mechanical parts; spring tension; testing contact point breaker arm tension; measuring tension pressures, mechanical pressures, mechanical masses; balancing roller or platen tensions. The units come in three sizes with capacities of two lb., five lb., and 20 lb.

FORK TRUCK FOR NARROW AISLES

NP13—A new 2000-lb. capacity Aisle Saver electric fork truck is available from the Crescent Truck Co. Free initial lift is $63\frac{1}{2}$ " with a maximum lift of 120 ins. The truck is equipped with



an 83-in. collapsible mast which incorporates a new, auxiliary twin-cylinder hydraulic lifting unit. The driving unit has double reduction spiral bevel to helical gears of drop-forged alloy steel. Collapsed height of 83 in. over-all permits the truck to operate in low-ceiling areas. Standard tilt is five degrees back and three degrees forward. Designed for narrow aisles, the truck can right-angle stack from eight-ft. aisles with a 40" x 32" pallet. Further information may be obtained by using the postcard bound in this issue.

SEQUENCE CHARGE CONTROL

NP14—A sequence charge control which can be attached to its rectifier type truck battery chargers has been announced by the General Electric Co. The unit is said to double the working capacity of the chargers. The device makes it possible to charge two fully discharged batteries in 13 hours from a single rectifier. It utilizes the same automatic two-rate method of charging as employed in standard G-E rectifier chargers. A high starting rate is applied to one battery to bring it up to

80 to 90 per cent of full charge, then the second battery is automatically charged to the same percentage. Both batteries then are automatically given the finishing charge simultaneously. The basic characteristics of the original charger can be restored by a switch so that a single battery can be charged in eight hours. The sequence charge control may be attached in about two hours, it is said.

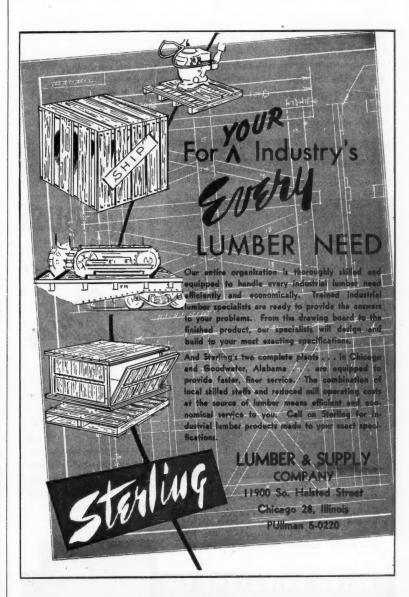
POWER CART

NP15—An improved model of the Power Cart has been announced by the Gar-Bro Mfg. Co. The unit is designed for handling bulk material on construction jobs. Included among its features are a

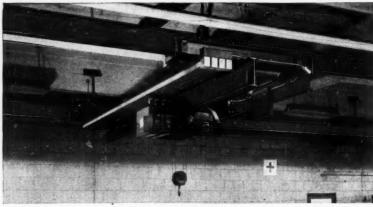
seven-horsepower four-cycle gasoline engine which enables the cart to climb 20 per cent grades with a 2000-lb load, it is stated. Steering is done by a tiller which turns the rear wheel through a 180-degree arc, enabling the machine to turn around on a four-ft. radius; forward and reverse motion is controlled by the same tiller; speed is controlled by a foot throttle. The unit is 39½" x 86" and will dump on standard five-ft. runways.

PAPER ROLL ATTACHMENT

NP16—An attachment for standard Skylift electric fork trucks that will handle paper rolls varying in diameter from 24" to 48" is available from the



ABELL-HOWE **Builds The Crane You Need**



Twenty-five years concentrated on overhead handling equipment have made the Abell-Howe line complete as well as efficient. That is why, whether you need a motorized or hand operated crane, monorail equipment, or electric hoists, you are likely to find precisely the size and type your operations require in the Abell-Howe line. You will find, too, that in low initial cost, economy of operation, dependability of performance, and engineering service, Abell-Howe has much to offer you.

Ask today for Catalog C-102

Write us about your crane needs today.

ABELL-HOWE CO. 53 W. JACKSON BLVD., CHICAGO 4, ILLINOIS

CRANES AND RUNWAYS . MONORAILS . HOISTS . STORAGE RACKS



C-F Lifters are made in manual or motor models in capacities from 2 to 60 tons or larger, in standard or semi-special designs. Write for the illustrated bulletin "C-F Lifters"-it may help solve a tough materials handling problem for you.

Here's a 10 ton C-F Lifter handling bundles of sheet steel in a Westinghouse plant with ease and safety. High grade sheets like these, used in stator and rotor laminations, must be handled carefully-and in a busy

the

Easy Way

plant, they must be handled quickly. That's why a C-F Sheet Lifter is doing the job.

CULLEN-FRIESTEDT CO. 1320 S. Kilbourn Ave., Chicago 23, Ill.



Automatic Transportation Co. The unit can be used for rolls up to 60" long, and, if the load is balanced properly, it will handle rolls up to 78" long. According to the release, the attachment can be installed on a fork truck in a few minutes. The attachment consists of a motorized unit that revolves through 360 degrees, two hydraulic clamping devices operated by independent hydraulic rams, and adjustable contour-lip clamping arms. The arms are push-button controlled, and equalize themselves for positioning in accordance with the diameter of the roll being handled. Because the arms equalize independently, it is possible to pick up two rolls of different diameters and carry them simultaneously.

COLLAPSIBLE SHIPPING CONTAINER

NP17-The Plycraft Fabricating Co. has introduced a plywood collapsible shipping container. The unit is a reusable folding, solid-side plywood crate mounted on a pallet. Each size and type is designed for a specific product. Units are available in colors for quick identification and can be numbered and trade-marked. Their plywood construction combines strength and lightness in weight. When the container is open, the hinged sides and back securely lock into position. Both top and front are (Turn to page 80)

STEEL STACKING BOXES



IMMEDIATE SHIPMENT

An ideal all-purpose shop box with rigid handle and hook hole each end. Sturdy all-welded construction. Heavy skids act as positive lock and reinforce box at point of maximum wear. Will stack with style 500 stacking bin of same length and width.

No. 602-16 12x18x8 16 Ga.

Plain Steel\$2.00 Green Finish......\$2.25

All Prices F.O.B. Philadelphia Plant Phone - Wire - Write

BAY INC. 3011 No. 16th Street Telephone: BAldwin 9-1805



The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Portable Belt Conveyor ... Model 363 portable belt conveyor is the subject of a new eight-page bulletin released by Barber-Greene Co. The model is made in lengths of 25′, 30′ and 35′ with 24″-wide plain or cleated belts. Drawings show layouts of individual and multiple belt systems, while photos give detail views of components. The "363" is designed to handle bulk materials weighing 100 lb. per cu. ft. up to 200 tons per hour. The units may be fitted with slow speed reduction for handling boxes or bags.

26—Dock Ramps and Truck Lifts... A new four-page illustrated folder is available from The Wayne Pump Co. It describes the company's hydraulic tilting loading dock ramps and truck lifts. It is said that the ramps will enable small industrial trucks with palletized loads to be driven directly in or out of the truck body. Many types of installations are illustrated.

27—Wire Rope Hoist... Bulletin 450, describing its new wire rope hoist, has been issued by Robbins & Myers, Inc. Features of the new unit include fast hoisting speed; rope or push-button control; rugged, single-unit housing; safety-enclosed block; heat-treated gearing; and ball bearing, oil-bath construction. Four models are described together with specifications and clearance dimensions. Listed are both single-hook and plain trolley suspensions. Individual parts are described in detail.

28—Cranes and Hoists . . . Bulletins by Shepard Niles Corp. describing its line of hoists and box girder cranes. Bulletin 177 gives data on cab-operated electric hoists and includes application photos. Bulletin 171 announces the company's new small hoist, the "Lift-About Jr.". The unit has a 1000-lb. capacity and is furnished with singlespeed push button or rope control. This model will operate on 110, 220 and 440 volts, 3Ph, 60 cyc. A.C. current or 110-220 volts D.C. Speeds, lifts, weights and dimensional data are given. Other literature available lists cab-operated electric hoists with capacities from 500 lb. to 20 tons; riveted box girder cranes; welded box girder cranes; and top running and under-hung single Ibeam cranes.

29-Weight Printer . . . A new 12-page, three-color bulletin is offered by the Yale & Towne Mfg. Co. It contains technical information for purchasing agents, methods and material handling engineers, inspectors, designers, and general management about the company's new Load King Scale Weight Printer. The folder explains what functions the units will perform, how they are constructed, and what models are available for a particular job. Ten tables detail the available models and their full printing capacities. 13 photos show components and final assembly of the models. Engineering drawings are included.

30—Overhead Chain Conveyors . . . The Keystone Conveyor Co. will send Bulletin 449 picturing and describing its line of Keystone Junior Conveyors. Photos show the overhead carrier in many applications. Engineering drawings give data on trolley brackets on I and T-beam track; traction wheel turn; gap tooth sprocket; and typical take-up units. Other drawings show track connections, turns, hooks and vertical bends. Speeds of these models range from four in. to 80 ft. per minute. Drive units are furnished to a maximum of 400-lb. chain pull.

31—Measuring Units . . . Model 1646 Lineal Tachometer is the subject of a catalog page available from the Durant Mfg. Co. This new friction drive tachometer is designed for all types of lineal applications in textile or paper mills, printing plants, etc. According to the release, the unit has no exposed external gearing. The unit is universally applicable and can be readily moved from one point to another, thus providing complete interchangeability throughout the plant. Model 1646 is available in standard units with dial ranges of 20 to 200 yards per minute and 60 to 600 ft. per minute. Other ranges can be manufactured.

32—Production Time & Cost Savers...
The Triangle Equipment Co., Inc. is offering an eight-page brochure, Production Time & Cost Savers. The literature contains pictures and operating information on a tilting portable belt conveyor which may be adjusted to any angle. It will carry a distributed load up to 300 lb. at 50 ft. per second. The same model is also furnished as a

gravity wheel conveyor. The brochure contains data on the company's overhead cable conveyor which is available with fixed or variable speed from six ins. to 100 ft. per minute and turns on a radius as little as $7\frac{1}{2}$ ins.

33-Tractor-Mounted Excavator . . The Hystaway, a tractor-mounted excavator, is featured in a four-page leaflet offered by the Hyster Co. Pictures show the unit in action in earthmoving, construction jobs and heavy duty work. The unit mounts in less than two hours on Caterpillar D8, D7 or D6 tractors and may be dismantled in one hour, it is said. Dragline, clamshell, crane and hoe combinations are currently available and a shovel front will soon be in production. The advantages of tractor mobility and maneuverability are stated to be retained with the Hystaway installed.

34—Fork Trucks Studies . . . A jobstudy of its fork trucks in a building supply company is contained in a new brochure released by The Towmotor Corp. Pictures and text describe fork trucks during loading, in the yard, in the warehouse and storing. Job studies of other industries are also available from the company.

35—Conveyors... The Lamson Corp. offers a four-page circular on its line of conveyors and tray elevators. Gravity roller, booster, belt, slat, overhead, and vertical conveyors are pictured and described in detail. A page is also devoted to the company's line of pneumatic dispatch tubes. Industrial application photos and a brief account of the individual uses highlight this publication.

36—Coal Conveyor . . . The G. N. Crawford Equipment Co. is offering a four-page pamphlet on its pneumatic tired aluminum coal conveyor, which is designed for transporting coal from truck to bins. The one-man operated unit has the following features: light weight for easier handling; box frame construction; permanent scrapers on both head and tail pulley; V-belt drive; a 2½ HP, four cylinder air cooled gasoline engine or 1 HP electric motor. Specifications and photos are included.

37—Mobile Cranes... The latest issue of the Thew Lorain News contains several dozen installation photos of various cranes manufactured by the Thew Shovel Co. Shown are tire-mounted, locomotive and crawler-mounted cranes in a variety of industrial applications. Different attachments are also pictured and described. Photos show units during earth moving, road and building construction, quarry work, unloading at a steel mill, etc.

38—Magnesium in Material Handling
... How Magnesium Pays is the subject of a new catalog issued by the Dow
Chemical Co. Included in its 60 pages
is a section on material handling equipment which is constructed of magnes-

Conveyors

AND MATERIALS HANDLING SPECIALTIES

The Anchor Steel & Conveyor Company is an organization of practical engineers which for more than twenty years has been designing, manufacturing and erecting conveyors and conveyor systems throughout industry. Many of these projects have included conveyors for unit and final assembly operations.

In addition, Anchor engineers have developed specialties that have proved extremely valuable in mass production. One of these is the Pan Type Quench Tank Conveyor which prevents small parts from the heat treat furnace from getting lost in the tank.

Write for Bulletin 36-1

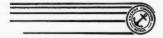
Pan Type Quench Tank Conveyor which delivers all of even the smallest parts to the unloading station.



Another is the Overload Safety Cut-out which eliminates down time when a conveyor suddenly encounters an overload which without this device would shear a drive pin that would then have to be replaced while everyone on the assembly line waited.

The Overload Safety Cut-out protects the conveyor and drive but it allows the conveyor to be started again immediately the cause of the overload is removed—no waiting to replace shear pins. Write for Bulletin A-46.

ANCHOR



STEEL AND CONVEYOR COMPANY
6906 KINGSLEY AVENUE • DEARBORN, MICHIGAN



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For converting skid platforms into skid-bins for handling loose loads. Capacities increased by adding rings. Outside corner angles, radiused for safety, are full height of bin for protection of hardwood sides. Our own lock corner construction reinforces bolts and insures longer life.





ium. In each case a problem is outlined and the solution explained with text and appropriate pictures. Among the equipment featured are gravity conveyors, portable dock boards and hand trucks.

39—Automatic Tipping Buckets . . . Two leaflets are available from the Cleveland Beacon Products Co. depicting its line of automatic tipping buckets. Models are available with single or twin hook suspension. Other features include minimum headroom; heavy steel plate of weld construction; hand latch which will not trip until operated. The units are equipped with casters for floor movement. One type is motorized for 360 degree rotation. Engineering drawings, complete specifications and operating information is included.

40-Riding Type Hand Truck . . . A six-page mailing piece is offered by Young Iron Works. The literature pictures and describes the Xpediter, a riding type powered hand truck. The unit consists of a wheel mounted hand truck frame attached to a driving unit (also mounted on wheels) which has a pedal platform on which the operator rides. Front frames are interchangeable. The two sections are constructed to allow an inside turning radius of 24". Acceleration, brake and reverse are controlled by pressure of operator's foot on a single pedal. No shifting of gears is required to change direction. Standard ratio speed is 6 MPH, with higher and lower speeds optional. Carrying capacity, 800 lb.

41—Belt Conveyor, Accessories . . . The Mar-Rail Conveyor Co. has released a series of bulletins on its line of belt conveyors and conveyor accessories. The conveyor is available in lengths from 10 to 100 ft. in standard 10-ft. multiples, and belt widths from six to 36 ins. in two-in. multiples. Other bulletins picture and describe drive units, take-up units, roller beds, adjustable leg supports, and angle changers. Several pages are devoted to installation shots, specifications and engineering data.

42-Mobile Cranes . . . A new fourcolor, six-page folder is available from Coles Cranes, Inc. The company's line of tire, truck-mounted and locomotive cranes are pictured and described. Tire-mounted models are available with 13/4, 3, 5, 71/2 and 15-ton capacities. Three of these models are pictured with specifications, engineering data, load and capacity tables. Tables give information on how to obtain safe outreach according to the weight and position of the load. One of several features is automatic safe load indicator, which warns driver of overload and stops motion.

43—Conveyors . . . Gravity wheel, floor-to-floor, slat, portable, and belt conveyors are included in a bulletin from Sage Equipment Co. Each model

is pictured together with detailed description.

44—Enameled Chute . . . "Slide-Fast" porcelain enameled chutes, their types, manufacture, and uses are illustrated in a new 16-page catalog published by Erie Enameling Co. The booklet pictures some of the many uses for the chutes in the material handling field.

45—Food Wrapping Machines . . . Hayssen Mfg. Co., manufacturers of wrapping and slicing machinery, have issued new bulletins on machinery for wrapping bread, vegetables, candy, baked goods and cartons.

46—Wirebound Box Machines . . . Advantages of using wirebound boxes are discussed in a new brochure published by Saranac Automatic Machine Co. In addition, cleaters, staplers, twisters and other machines used in box making are described.

47—Portable Conveyors . . . Three models of its Power-Veyor, for moving boxes, cartons, coal, sand, vegetables and other bulk materials are illustrated and described in a bulletin issued by Equipment Engineering Co.

48—Car Pullers . . . A folder is being distributed by Jeffrey Mfg. Co. describing its all-purpose car pullers which have capacities of three and six cars and eliminate the need for yard locomotives in many plants.

More Time FOR PRODUCTION AND SALES!



SPEEDWAYS save you time! You can save labor costs, too—by installing low-cost SPEEDWAYS GRAVITY CASE CONVEYORS . . and you'll speed up production at the same time.

DOUBLE YOUR PRODUCTION WITH SPEEDWAYS
"Y" FLIPSWITCH

The "Y" Flipswitch illustrated permits a double flow of materials—in either direction—by simply manually flipping the switch. Used in conjunction with standard 5' or 10' lengths (12", 15" or 18" wide) of Speedways sections.

Write for Speedways FREE new illustrated folder-No. 147.

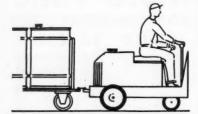


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Monarch Neoprene Tires are another product of Monarch specialization in industrial solid tires. Like all Monarch Tires, they are carefully designed and engineered to their specific application with the idea of giving maximum service at minimum cost. Thousands of Monarch Industrial Solid Tires are used every month as original equipment by leading manufacturers of industrial vehicles.

Replacement tires available through the manufacturer of your equipment. Immediate delivery on most popular sizes.



Specialists in Industrial Solid Tires
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OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates: for "Positions Wanted" \$4.00 minimum, limit 25 words. For all other classifications \$4.50 minimum for 25 words, each additional word 15c; boldface type or all capitals, \$7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box address count as five words. All insertions are payable in advance.

These classified columns are not intended for the advertising of new products by manufacturers, their representatives, or their distributors. These col-umns are limited to Help Wanted or Positions Wanted advertisements, and for the offering of used equipment by the users of such equipment.

FOR SALE

CAR SPOTTER SALE: Electric Car Puller Hoists complete with Timken Tapered roller bearings, bronze work gear, sturdy steel base, vertical capstan; totally enclosed ballbearing motor. (3 phase, 60-cycle, 220-or-440 volts-other currents available). Speed aproximately 40-ft. per minute. *Model 5-BB (5HP) 5000 lbs. starting pull-\$388; *Model 7-BB (71/2 HP) 7000 lbs. starting pull-\$488; *Model 10-B (10HP) 10,000 lbs. starting pull-\$587. Bernstein Brothers, Manufacturers-Distributors, "Since 1890" Pueblo, Colorado.

One used Yale Electric Industrial Truck (low-lift), Model K23E-4 with a capacity of 4000 pounds. This truck is in A-1 condition and the price is \$1500.00.

Coca-Cola Bottling Co., Canton 4, Ohio

PALLETS, 1000 Two Side 66" x 42" Hard Wood. Excellent Condition. Exceptional value. Harvey Sales Company, 301 East 152nd Street, Harvey, Ill. Harvey 555.

For Sale-Surplus Yale Work Saver Pallet and Skid Mover-Model M4DP 27-30. Equipped with a 10C7 Edison Battery-Machine in perfect condition. Bought new June '48-Any additional information given on request. Collins-Dietz-Morris Company, Oklahoma City, Oklahoma.

LINES WANTED

MANUFACTURERS REPRESENTA-TIVE-Northern Ohio Territory. We want one or more high quality lines. Wonderful contacts. Past connection severed April first. Fourteen years in Cleveland Territory selling steel forg-ings, die blocks, material handling equipment, power shear knives and rotary cutters to machinery manufacturers, steel mills, drop forging shops and general manufacturers, Mechanical Engineering degree. The J. R. Allen

Company, 402 Swetland Bldg., Cleveland, Ohio.

POSITION WANTED

ARE YOU EXPORT-MINDED Experienced export sales engineer desires position as Export Manager or traveling field Sales Engineer with progressive, export-minded manufacturers of materials handling equipment. Practical, direct-to-industry materials handling experience — lift truck, hoists, cranes, scales - Europe, Africa, and South America. Fluent command of French, Spanish, and Portuguese. At present on assignment abroad; soon to return to States. Box 6149 FLOW.

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EQUIPMENT WANTED

WANTED

Fork Lift Trucks Krane Kars Hand Lift Trucks Skid Platforms Pallets Conveyors

We pay high prices for Used Handling Equipment A & A MACHINERY CORP. 1627 Flushing Ave. Brooklyn, N. Y.

DISTRIBUTORS WANTED

DISTRIBUTORS WANTED: Gravity and power conveyor manufacturer desires Distributors for Chicago, Baltimore, Washington and Indiana Territory. Our products are known throughout the world. Franchise valuable, for materials handling organization. Write giving complete details your organization. Box 6249.

IN SUBSEQUENT ISSUES

Clever packaging techniques in connection with a mechanism weighing several hundred pounds . . . A wholesale grocery layout designed for minimum travel of in-plant rolling stock . . . Solutions to a variety of handling problems in connection with sulphur mining operations - an outoutstanding paper which received an award from the judges in the 1948 FLOW Cost Analysis Contest . . . An off-the-beaten-track assembly description that contains some sound production ideas . . . Stone handling in a plant of a large quarry that is on a par with best machine shop practices.

Literature Available From Advertisers In This Issue

(Check corresponding numbers on the enclosed card for the free literature listed below)

- A-1. NUTTING TRUCK AND CASTER CO. will send you Bulletin 48-JS on its Jack-Skid handling system.
- A-2. MERCURY MFG. CO. A 52page catalog pictures and describes all Mercury equipment.
- A-3. WAYNE PUMP CO. Information on the company's hydraulic hoists is contained in a folder.
- A-4. BARRETT-CRAVENS CO. is offering its Junior Catalog which pictures and describes its handling equipment.
- A-5. CONVEYOR SPECIALTY
 CO. Information will be sent on its
 Unitable, portable end roll drive belt
 conveyor.
- A-6. FAIRBANKS, MORSE & CO. is offering complete facts on its belt conveyor scale.
- A-7. LINK BELT SPEEDER CORP. A booklet illustrates and describes many applications of its shovelcranes.
- A-8. TRUSCON STEEL CO. Catalog shows complete line of steel boxes and skids.
- A-9. W. C. DILLON & CO. will send Bulletin DD containing information on its Dynamometer, a scale which is attached to the hoist hook.
- A-10. IDEAL STENCIL MA-CHINE CO. is offering the Ideal Shipping Guide and particulars on its stencil machine.
- A-11. SISALKRAFT CO. Avaliable are details on the Fibreen method of unitized loading and sample of Fibreen reinforced waterproof paper.
- A-12. LAMSON CORP. Bulletins contain information on pneumatic tube systems, blowers and exhausters, automatic pallet loaders and industrial vacuum cleaning systems.
- A-13. RACK ENGINEERING CO. is offering data on its fully adjustable pallet rack.
- A-14. AMERICAN MONORAIL CO. "Up and Over" is the title of a 20-minute, 16 mm sound film available from the company.
- A-15. NEFF & FRY CO. will send information on its concrete stave storage bins.

- A-16. CRESCENT TRUCK CO. Bulletins picture and describe the company's line of fork trucks with capacities ranging from 1000 to 8000 lb.
- A-17. KIMBERLY-CLARK CORP. will send the illustrated Kimpak packaging guide.
- A-18. HARNISCHFEGER CORP. Bulletin H-13 contains data on its traveling bridge cranes.
- A-19. ANCHOR STEEL AND CONVEYOR CO. Overload Safety Cut-out is the subject of Bulletin A-46.
- A-20. SPEEDWAYS CONVEYORS INC. will send its new illustrated folder, No. 147, on wheel conveyors and the "Y" Flipswitch.
- A-21. ABELL-HOWE CO. is offering Bulletin ER-102 on storage racks, and Catalog C-102 on overhead handling equipment.
- A-22. INDUSTRIAL PRODUCTS CO. Bulletin W-69 contains information on the company's drum and barrel rack.
- A-23. WHITING CORP. Data on its line of electric hoists is found in Bulletin H-100B.
- A-24. HAMILTON TOOL CO. will send a bulletin picturing and describing its portable elevating table.
- A-25. TRUCK-MAN INC. Literature is available on its hydraulic skid lift, pallet toter and platform utility models.
- A-26. ROTARY LIFT CO. A catalog contains data on its adjustable hydraulic ramp for loading docks.
- A-27. COLSON CORP. is offering a 56-page catalog on its casters, lift jack systems and industrial trucks.
- A-28. DETROIT HOIST & MA-CHINE CO. A series of bulletins gives information on the company's monorail tractors, hoists, electric winch, and hand and motor traveled single beam cranes.
- A-29. MORGAN LUMBER SALES CO. Data is available on its four-way entry pallets.
- A-30. WAYNE CRANE DIVI-SION, AMERICAN STEEL DREDGE CO. Bulletin 412-44 gives complete specifications and load capacities on its Model 44, truck-mounted Corsair.



Offsets High Wages!

The higher your operating rate per hour, the more the 'Budgit' Electric Hoist saves for you. It adds many productive minutes to every hour.

In key spots on production, assembly, and inspection lines, production is greatly increased and cost greatly reduced when a 'Budgit' Hoist does the lifting. The savings made here would justify the modest cost of a 'Budgit' Hoist.

There is another and often a much greater reason for installing 'Budgits.' Workers like them because they make their jobs easier. They rid the operators of all fear of rupture, sprain and over-tiredness from lifting. Thus all their energy goes into more production all day long.

No installation costs with 'Budgit'! Hang up, plug in, and use! The daily current consumption is so small that it is not worth considering in the light of the great savings made when 'Budgit' Hoists lift your loads.

Install one now and let the 'Budgit' prove how much it saves for you in time and operating costs. How it increases production.

Made in sizes to lift 250, 500, 1000, 2000 and 4000 lbs. Prices start at \$119. Write for Bulletin No. 391.





BUDGIT Hoists

MANNING, MAXWELL & MOORE, INC. MUSKEGON, MICHIGAN

Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of Ashcroff Gauges, Hancock Valves. Consolidated Safety and Relief Valves and 'American' industrial instruments.

A TRIAL WILL CONVINCE YOU THAT MADE-RITE BRAND

HARDWOOD PALLETS

are the perfect solution to pallet problems of economy, function and durability.

These long life, sturdy pallets are made to specification from the tough, thrifty hardwoods of the north central states. You can't buy a better constructed pallet at ANY price.

PROMPT DELIVERIES

Write for prices on your



BOX 60 P.O. ANNEX STA. CINCINNATI, O.

NEW PRODUCTS...

(Continued from page 74)

removable for loading and unloading. The container can be designed with inner racks and trays, and can be handled



with fork or lift trucks. Additional information may be had by using the postcard bound into this issue.

HAND TRUCK

NP18—The Honeyman Mfg. Co. is manufacturing a hand truck which weighs 12 lb. and has a rated capacity of 500 lb. and can lift more than 1500 lb. (by static tests). Its 12" x 45" size make it applicable as an accessory on

delivery trucks. The truck is made with or without stair climbers. Its curved nose assembly enables it to carry cylinders and barrels as well as case goods. According to the release, gusseted sleeve joining between the nose and the frame gives strength at the points of greatest stress.

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BELT CONVEYOR CARRIER

NP19-A new belt conveyor carrier has been developed by Stephens-Adamson Mfg. Co. Known as the Sealmaster Ball Bearing Belt Conveyor Carrier, it is equipped with permanently-sealed, self-aligning, prelubricated ball bearing units. Design and construction features include lightweight construction; low power requirement; minimum maintenance; one-shot low pressure lubrication; interchangeable parts. The carrier features rigid, one-piece, welded steel frames which are designed to tilt in the direction of the belt travel and keep belt centered without the need of guide rollers. An inverted angle base and end brackets shed material and keep rollers free.

DRAWER CABINETS FOR SMALL PARTS

NP20—Steel drawer cabinets for small parts are available from the Aurora Equipto Co. They are designed for





ROL-AWAY SAVES Labor, Time and Space

"We now have eight Rol-Aways in our warehouse handling case lots of aluminum, black and galvanized steel, copper, brass, bars, rods and tubing. They not only save manpower but have the advantage of smaller space requirement, permitting us to carry two loads on our elevator where we previously could haul only one."

N. L. PECK, Pacific Metal Co.

ROL-AWAY is a specially designed hand truck for handling sheet metal, plywood, tubing, glass, pipe and other odd dimensional loads. Made of aluminum tubing, it is easy to handle and rolls in any direction. Three sizes, capacities up to 3000 pounds—easily operated by one man.

SEND FOR ILLUSTRATED FOLDER



BEALL PIPE & TANK CORP.

1945 N. Columbia Blvd.

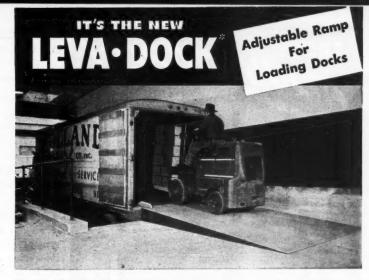
Portland 3, Oregon

nuts, bolts, washers, screws, nails, electrical parts and other small pieces. The units can be used singly, side-by-side, back-to-back and stacked on top of each other. Frames are welded into one solid assembly. Drawers have adjustable cross dividers on one-in. centers. Lengthwise dividers may be added or removed at will. One model has 18 drawers, each with three cross dividers. Overall size is 34" wide, 13%," high and 12" deep. The smaller model has eight drawers, each with two cross dividers. Overall size is 25½," wide, 10" high and 12" deep.

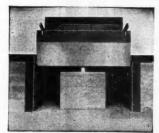
1000-LB. FORK TRUCK

NP21—The Clark Equipment Co. has redesigned its 1000-lb. capacity Trucloader fork truck. The unit's gas tank is now attached to the rear of the frame and is partially enclosed by the counterweight. The steering column has been moved forward to provide more leg room. Lift and tilt levers have been relocated in the same positions as on other Clark models. Floor plates can be easily removed and replaced, it is said. For further information, use the postcard bound into this issue.

The Flow Directory will be ready in mid-summer. Order yours today.

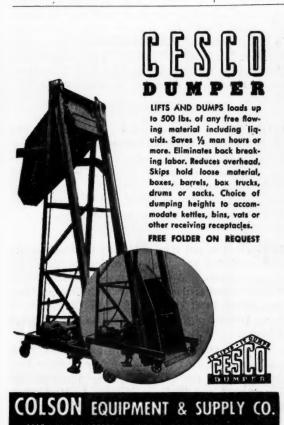


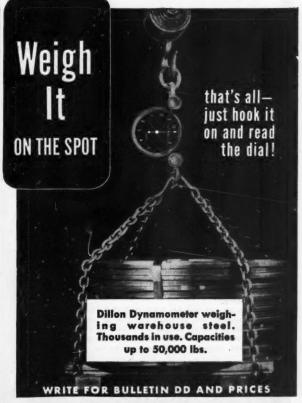
New hydraulic device keeps dock lined up with truck bed level



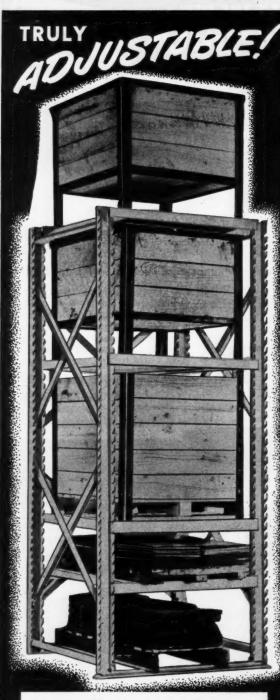
The Leva-Dock moves up and down with varying truck bed levels—permits fork lift trucks or other vehicles carrying heavy loads to move directly into trucks or trailers. Users say there's nothing like it. Backed by Rotary's experience on 45,000 hydraulic lifts. Write for Catalog.

ROTARY LIFT CO.
1006 Kansas, Memphis 1, Tenn.





W. C. DILLON & CO., Inc. 5410-F W. HARRISON ST. CHICAGO 44, ILLINOIS



This pallet rack is fully adjustable without the use of bolts or wrenches! Your fork lift truck can quickly and accurately position shelves to the proper spacing.

Racks can quickly be installed in banks of any desired length through the use of additional uprights (standard height 9') bolted to either end of the rack section shown. This is the solution to your pallet storage problem. Write us for details.

RACK ENGINEERING COMPANY

925 LIBERTY AVENUE PITTSBURGH 22, PENNSYLVANIA ON THE PALLET

(Continued from page 50)

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project will supersede present warehousing facilities at 440 W. Washington St. The new structure will have facilities for receiving and shipping of merchandise by rail and truck. Its loading platform will be able to accommodate 18 large interstate "land cruiser" type trucks at one time, and its receiving platform at the other side of the building, 10 freight cars.

JAMES P. KINNEY, vice president, Gordon, Kinney & Staninger, Inc., Detroit, has been named general chairman of the Fourth Annual Industrial Packaging and Material Handling Exposition, according to an announcement by the Society of Industrial Packaging and Material Handling Engineers. This national professional group will bring its annual Exposition to Detroit's Convention Hall, Oct. 4 through 7, 1949. Wayne University, through its department of Business Administration, headed by Dr. Spencer A. Larsen, will cooperate with the Society in the conduct of a Packaging and Material Handling Institute. The Institute will begin on Oct. 2, and classes will be conducted each day of the week at the Rackham Memorial Building.

A NEW parts depot has been established by Caterpillar Tractor Co. It is now under construction in Indianapolis and will be ready for occupancy this summer. The depot will facilitate parts shipments to the company's dealers and customers in 13 midwest and middle Atlantic states and in Ontario and Quebec, Canada.

THE Baker Industrial Truck Division of The Baker-Raulang Co. has moved its general offices including the purchasing, sales, engineering and service departments to 1250 W. 80th St., Cleveland. The division's manufacturing operations, presently located at the W. 25th St. plant, will be moved to the new location within the very near future.

44T HE How and Why of Quality Control" was investigated at a top-level conference of statisticians, engineers, and researchers meeting at the City College School of Business, New York City, on Monday, March 14, it was announced by Dr. Robert A. Love, Director of the school's Evening and Extension Division.

A demonstration calculated to prove that "Sampling Really Works" was conducted by Professor Herbert Arkin, of the CCNY Business Administration Department and Professor William A. MacCrehan, Jr., Director of the Gage Laboratory of New York University. A number of the latest sampling devices were used to illustrate this demonstration.

INDEX OF ADVERTISERS

	INDEX OF
Abell-Howe Co	68 and 74
Acme Steel Co	5
Allis-Chalmers Mfg. Co	
American Monorail Co	10
Anchor Steel & Conveyor Co	70
Arkansas Pallet Corp	4
Automatic Transportation Co	1
Barrett-Cravens Co	
The Bassick Co	Inside Back Cove
Bay, Inc	74
Beal Pipe & Tank Corp	80
Berger Mfg. Co	
E. W. Buschman Co	
Butler Bin Co	61
C & D Batteries, Inc	20
The Camp Co	41
Clark Equipment Co., Tructracto	
Clyde Iron Works, Inc	
Coles Cranes, Inc	
Colson Equip	
Colson Corp	41
Consulting Engineers	
Conveyor Specialty Co., Inc.	
Crescent Truck Co	
Cullen-Friestedt Co	74
Demoster Brothers, Inc.	
Detroit Hoist & Machine Co	68
W. C. Dillon & Co., Inc	
Thos. A. Edison, Inc	
Euclid Crane & Hoist Co	83
Factory Service Co	
Fairbanks-Morse & Co	17
A. B. Farguhar Co	35
General Electric Co	18 and 19
Gould Storage Battery Corp	
Hamilton Tool Co	45
A. L. Hansen Mfg. Co	
Harnischfeger Corp	nside Front Cove
Homer Mfg. Co., Inc	72
Frank G. Hough Co	10
Ideal Stencil Machine Co	64
Industrial Products Co., Inc	72
Ironbound Box & Lbr. Co	
Kimberly-Clark Corp	63

Lamson Corp	
The Lanham Co 76	
Lewis-Shepard Products, Inc 40	
Link Belt Speeder Corp41	
Manning, Maxwell & Moore, Inc	
Mechanical Handling Systems, Inc	
Melooz Mfg. Co 55	
Mercury Mfg. Co 47	
Mobilift Corp	
Monarch Rubber Co	
Morgan Lumber Sales Co 77	
Moto-Truc Co	
Mowbray & Robinson Lbr. Co	
Neff & Fry Co 55	
Nolan Co	
Nutting Truck & Caster Co	
Oliver Corp	
Pallets. Inc	
Palmer-Shile Co	
Phoenix Mfg. Co	
Plykraft Fabricating Co	
Rack Engineering Co	
Rapids-Standard Co	
Rathborne, Hair & Ridgway Co	
Ready-Power Co	
Robbins & Myers, Inc	
Ross Carrier Co	
Rotary Lift Co	
Schwitzer-Cummins Co	
Service Caster & Truck Corp	
operation control the state of	
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H. C. Sweet Co	
Thomas Truck & Caster Co	
Towmotor Corp	
Truck-Man, Inc	
Truscon Steel Co	
U. S. Rubber Co	
Wayne Crane Div., American Steel Dredge Co. 33	
Wayne Pump Co 13	
Whiting Corp 72	
Yale & Towne Mfg. Co 12	



.... because an efficient warehouse plan demands a pallet that has been designed to meet every particular need.

ENGINEERED DESIGN pallets are manufactured to exact specifications and are your assurance of efficient warehousing. Write, wire or phone today—no obligation.



Manufacturers of
ENGINEERED DESIGN Pallets
GLENS FALLS, N. Y.





All 9 Thomas trucks pictured here have the same chassis. Only the superstructures are different. Thomas has more than 1000 different types of stake, rack, box and shelf superstructures cataloged which makes easy the selection of a "Job-Suited" truck. Series 3400 truck above. Hardwood frame, round corners. 10 platform sizes. Write for catalog.

THOMAS TRUCK and CASTER CO. 3182 Mississippi River Keokuk, lowa



available in capacities of 3, 5, 7-1/2, 10,

jig machined to assure interchangeability.

THE EUCLID CRANE & HOIST COMPAN

1362 CHARDON ROAD, EUCLID, OHIO

All detail parts are standardized and

15, 20 and 25 tons in various spans.

Anti-friction

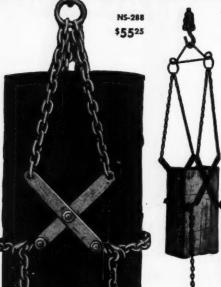
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PALMER-SHILE

MATERIALS HANDLING EQUIPMENT

Designed to do Specific Jobs Better



BARREL and BOX GRAB

Picks up any type of wood or steel barrel, box or container with absolute safety—from 40" diameter down to small nail keg size. Lifts up to 2,000 lbs. Designed on toggle principle -rugged construction. Heavy welded steel chains, tongs of heavy bar stock. Weight approximately 35 lbs. Air dry enamel finish. (Grabs built to handle heavier or larger loads on special order).



All Metal Pallet with Ring

Can be furnished with ring section per-manently welded to pallet if desired. Pallet with beveled pad to allow truck wheels to ride over easily. Special cor-rugated rolled steel—center channel



Hand Dump Truck

Reinforced heavy sheet steel. ½ cubic yard capacity — two 8" semi-steel wheels and two 4" metal swivel casters, Wt. 125 lbs.



\$3965 NS-4188

NS-418A

\$4505 28" wide 48" long 30" high

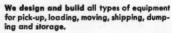
Used as push truck or lift truck.
Hardwood, metal bound, all welded construction, no bolts used. Sturdy 5" swivel casters.



NS-415M \$6760 6" x 2" metal wheels NS-415R \$6380 8" x 11/2" rubber

Utilities Rack on Wheels

Handles parts or small items. All steel welded construction. Width 24", height 50", length 48" overall —12" shelf clearance. Roller bearing coster wheels —two swivel. Wt. 220 lbs.



When Ordering: Give item number to prevent error. All weights approximate. All prices f.o.b. Detroit, Mich., subject to change without notice.

Shovel Truck

B-339B \$2750

(Roller bearing wheels)

B-339C \$3250

(Rubber roller bearing wheels)

For pick-up and moving barrels, drums, bags, pans, crates, hampers, cases, etc. Sturdy, all welded con-struction, easy wheeling. Weight 50 lbs.



Two Wheel **Hand Truck**

With safety knuckle guards—straight—back—heavy 7' nose plate for ease in lifting boxes, crates, bags, etc.—reinforced angle iron frame, welded crossbars.

B-439MS \$2000 18" wide, 42" high, metal wheels

B-439RS \$2500

18" wide, 42" high, rubber tired wheels B-439ML \$2450



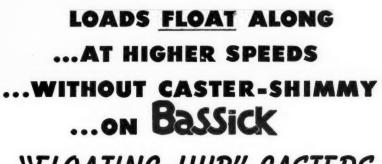
B-439RL \$2825 20" wide, 48" high, metal 20" wide, 48" high, rubbet tired wheels



B-488R \$4200

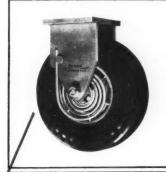
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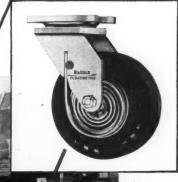
mershile 16012 Fullerton Ave., DETROIT 27, MICH.



"FLOATING-HUB" CASTERS

These Casters Reduce Maintenance Costs!





At the Philadelphia Naval Aviation Supply Depot, Bassick "Airliner" Casters made possible longer trains, faster travel, quieter operation, while protecting materials carried. And . . . this is vitally important . . . they definitely reduced maintenance costs.

A typical engineering advancement by the world's largest caster manufacturer, "Airliners" combine Bassick's exclusive "Floating-Hub" principle of shockless wheel springing with the semi-pneumatic "FloaTread" tire, designed for maximum flotation.

The result is a caster that absorbs shocks, eliminates shimmy, protects loads and equipment ... the safest, fastest, most economical running gear for power-pulled trailer trucks.

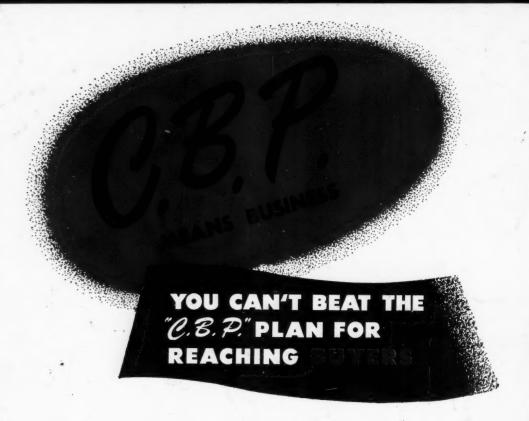
All over the country, in widely vary-

ing applications, Bassick "Floating-Hub" Casters are proving their many advantages over old-fashioned caster types. For further facts on how these outstanding modern casters can speed up your own materials handling — and cut your costs — write to THE BASSICK COMPANY, Bridgeport 2, Connecticut. DIVISION OF STEWART-WARNER CORPORATION. In Canada: BASSICK DIVISION, Stewart - Warner - Alemite Corporation, Ltd., Belleville, Ontario.



Bassick

Making more kinds of Casters... Making Casters do more



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